Owner’s and Safety Manual

for Gasoline Chain Saws (pages 2 - 30)

Manuel d’emploi et de sécurité

de tronçonneuses thermiques (pages 31 - 59)

DCS 340
DCS 341
DCS 400
DCS 401

WARNING!
Read and understand this Manual. Always follow safety precautions in the Owner’s and Safety Manual. Improper use can cause serious injury! Preserve this Manual carefully!

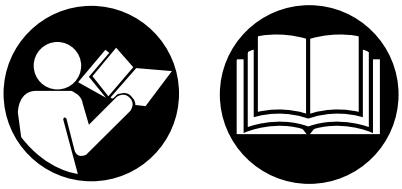
ATTENTION!
Suivez toujours les conseils de sécurité du présent manuel d’emploi et de sécurité. Une utilisation incorrecte de la tronçonneuse peut entraîner des blessures graves! Conservez avec soin ce manuel. Lisez et comprenez ce manuel.

WARNING !

Careless or improper use of this product can cause serious or even fatal injury.
Before operating a chain saw or other MAKITA products it is important that you read, fully understand and carefully follow the instructions outlined in this owners manual. Kickback may cause severe or fatal injury and is one of many potential dangers in operating a chain saw. Kickback and other safety related precautions are described in detail within this owners manual. Additional owners manuals are available from MAKITA USA, INC.,14930-C Northam Street, La Mirada, CA 90638-5753, Telephone: (714) 522 80 88 and MAKITA CANADA INC., 1950 Forbes Street, Whitby, Ontario, Canada, L1N 7B7, Telephone: (905) 571 22 00.

This product complies with: American National Standard Institute B 175.1-1991 chain saw safety standard.
Canadian Standards Association Z62.1-95 chain saw safety standard.
Z62.3-96 chain saw kickback standard.

With the purchase of this chain saw you have chosen a German quality product. Important instructions for the assembly and operation of this saw are given in this manual. For your own safety, we ask you to read the accident prevention instructions very carefully before putting your chain saw into operation, as incorrect handling can, despite all precautions, lead to accidents. With a little care and attention you will have good service and lasting satisfaction from this first-rate product. The following industrial property rights apply: GSM MR 11414, GBM 9212059, GBM 29616652.



MAKITA DCS 340, DCS 341, DCS 400, DCS 401

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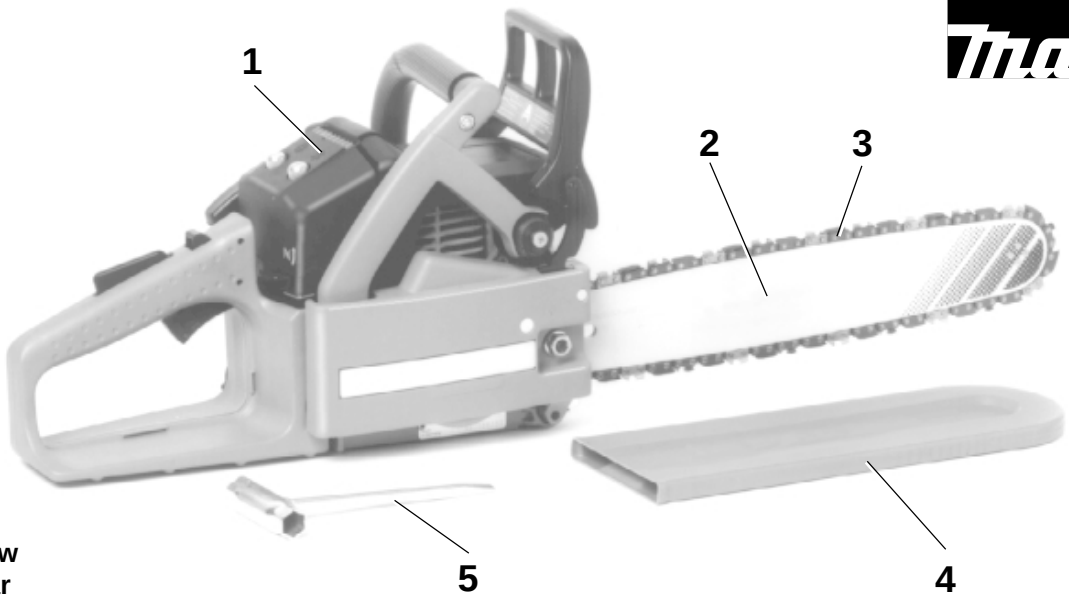
The MAKITA DCS 340/341/400/401 will be delivered in a protective cardboard box to prevent transport damage. Cardboard is a basic raw material and is consequently reuseable or suitable for recycling (waste paper recycling).

Delivery inventory



1. **Chain saw**
2. **Guide bar**
3. **Saw chain**
4. **Chain protection cover**
5. **Assembly tool**
6. **Owner's manual** (not shown)

In case one of the parts listed should not be included in the delivery inventory, please consult your sales agent.

Symbols

You will notice the following symbols on the chain saw and in the instruction manual:

Read instruction manual and follow the warning- and safety precautions!

Particular care and caution!

Forbidden!

Wear protective helmet, eye and ear protection!

Wear protective gloves!

No smoking!

No open fire!

On/Off (I/O) switch

Stop engine!

Press starting valve

Engine -manual start

Choke lever

Carburetor adjustment

Working in winter

Working in summer

Kickback!

Chaine brake

Fuel and oil mixture

Chain oil fill/oil pump

First aid

Recycling

Further symbols see page 5.

Safety precautions for chain saw operators

While operating the chain saw please observe the following rules:

a) Contact of the guide bar nose with any object should be avoided.

b) Tip contact may cause the guide bar to move suddenly upward and backward, which may cause serious or fatal injury.

c) Always operate the chain saw with both hands.

WARNING!

Read and follow all safety precautions in the owner's manual. Failure to follow instructions could result in serious injury.

WARNING!

This chain saw is capable of severe kickback that could result in serious injury to the operator. Do not operate this chain saw unless you have extraordinary cutting needs and experience in and special training for dealing with kickback. Chain saws with significantly reduced kickback potential are available.

WARNING!

Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. This contact may abruptly stop the **saw chain** and in some cases may cause a lightning fast reverse **reaction,** kicking the guide bar up and back towards the user, or push the guide bar back towards the operator. **Kickback** may cause you to lose control of the saw.

As a chain saw user, you can take several steps to reduce the risk of a kickback and potential injury.

A. With a basic understanding of kickback, you can reduce or eliminate the element of surprise. It is a sudden surprise that contributes to accidents.

B. Keep a good firm grip on the saw with both hands, your right hand on the rear grip and your left hand on the tubular handle, when the engine is running. Use a firm grip with thumbs and fingers encircling the chain saw handles. A firm grip can neutralize kickback and help you maintain control of the saw. Don't let go!

C. Make sure that the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact the log, branch, or any other obstructions which could be hit while you are operating the saw.

D. Do not overreach or cut above shoulder height.

E. Follow manufacturer's sharpening and maintenance instructions for the saw chain.

F. Only use replacement bars and chains specified by the manufacturer or the equivalent.

Additional safety precautions

The following additional safety precautions should be observed by all users of chain saws:

1. Do not operate a chain saw when you are fatigued.
2. Use safety footwear; snug-fitting clothing; protective gloves; and eye, hearing, and head protection devices.
3. Use caution when handling fuel. Move the chain saw at least 10 feet (3 m) from the fueling point before starting the engine.
4. Do not allow other persons to be near the chain saw when starting or cutting with the chain saw. Keep bystanders and animals out of the work area.
5. Do not start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
6. Keep all parts of your body away from the saw chain when the engine is running.
7. Before you start the engine, make sure that the saw chain is not contacting anything.
8. Carry the chain saw with the engine stopped, the guide bar and saw chain to the rear, and the muffler away from your body.
9. Do not operate a chain saw that is damaged, is improperly adjusted, or is not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released.
10. Shut off the engine before setting it down.
11. Use extreme caution when cutting small size brush and saplings because slender material may catch the saw chain and be whipped toward you or pull you off balance.
12. When cutting a limb that is under tension be alert for springback so that you will not be struck when the tension on the wood fibers is released.
13. Keep the handles dry, clean, and free of oil or fuel mixture.
14. Operate the chain saw only in well-ventilated areas.
15. Do not operate a chain saw in a tree unless you have been specifically trained to do so.
16. All chain saw service, other than the items listed in the owner's manual maintenance instructions, should be performed by MAKITA . (For example, if improper tools are used to remove the flywheel or if an improper tool is used to hold the flywheel in order to remove the clutch structural damage to the flywheel could occur and could subsequently cause the flywheel to burst.)
17. When transporting your chain saw, use the chain protection cover.
18. Low kickback bars and low kickback chains are designed to reduce the risk of kickback injury. Ask your MAKITA dealer about these devices.

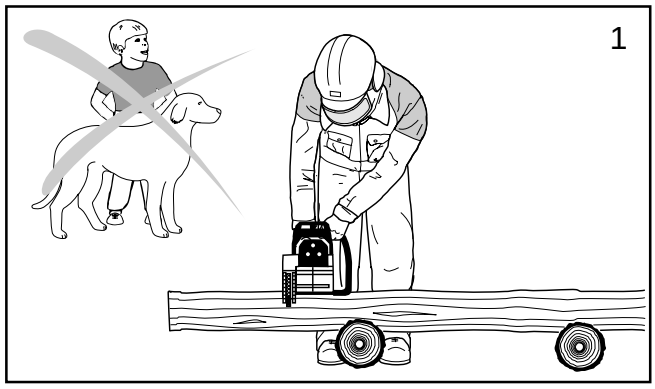
General Safety Precautions

The use of any chain saw may be hazardous. At full throttle chain speed can reach 45 mph (20 m/s). It is important that you read; fully understand and observe the following safety precautions and warnings. Read the owner's manual and the safety instructions periodically.

WARNING !

Reactive forces, including kickback, can be dangerous. Careless or improper use of any chain saw may cause serious or fatal injury.

Have your DOLMAR dealer show you how to operate your chain saw. Observe all applicable local safety regulations, standards and ordinances.


1

WARNING!

Minors should never be allowed to use a chain saw. Bystanders, especially children and animals should not be allowed in the area where a chain saw is in use (fig. 1).
Never let the saw run unattended.
Store it in a locked place away from children. Fill the fuel tank to 7/8 th full (see storing the saw).
Do not lend your chain saw without this owner's manual. Be sure that anyone using your saw understands the information given.

Proper use of a chain saw involves
1. the operator
2. the saw
3. the use of the saw.

Discription of symbols used on chain saws:

Z 62.1-95 and
Z 62.3-96
Class 1A

Compliance with CSA -Standards

ANSI B175.1-1991

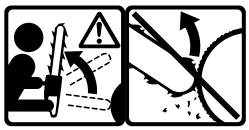
Compliance with ANSI -Standards

45M6

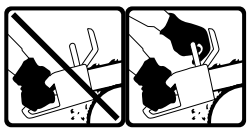
Chain Saw listed in accordance with American National Standard Safety Specifications for Gasoline Powered Chain Saws (ANSI B 175.1-1991).

Maximum Computed Kickback Angle (CKA)* without using the chain brake when using the recommended bar and chain combinations (In this example the CKA is 45°).

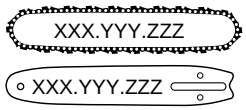
MaximumComputed Kickback Angle (CKA)* with using the chain brake when using the recommended bar and chain combinations (In this example the CKA is 40°).



Contact of the guide bar tip with any object should be avoided! Tip contact may cause the guide bar to move suddenly upward and backward, which may cause serious injury!



Always use two hands when operating the chain saw!



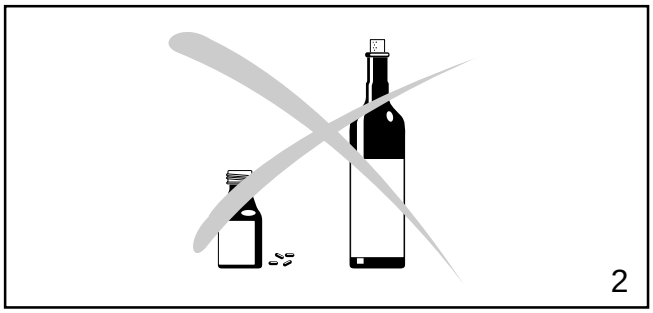
Reduced Kickback Bar and Chain combination that has been evaluated with the power head to achieve kickback protection (according to ANSI and CSA standards).

* The Computed Kickback Angle is a calculated value from energies measured on a test bench.It is not the angle of the guide bar moved upward in case of a KICKBACK.

The operator

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol), which might impair vision, dexterity or judgment.


2

WARNING !

Prolonged use of chain saws exposing the operator to vibrations may produce Whitefinger disease (Raynaud's phenomenon). This phenomenon reduces the hand's ability to feel and regulate temperature, produces numbness and burning sensations and may cause nerve and circulation damage and tissue necrosis.

All MAKITA saws are therefore provided with an antivibration system which is essential for those using chain saws on a regular or sustained basis. Antivibration systems do not guarantee that you will not sustain Whitefinger disesase, however, they reduce this danger considerably. Nevertheless, continual and regular users should observe their hands and fingers and in case of any abnormal symptoms, seek medical advice immediately.

Proper clothing

Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loose-fitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, or anything that could become entangled with the saw or brush. Wear overalls or jeans with a reinforced cutting resistant insert (fig. 3).

Protect your hands with gloves when handling saw and saw chain. Heavy-duty, nonslip gloves improve your grip and protect your hands.

3

Good footing is most important in chain saw work. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.

Proper eye protection is a must. Non-fogging, vented goggles and a face screen is recommended. Their use reduces the risk of eye and facial injury.

Wear an approved safety hard hat to protect your head. Chain saw noise may damage your hearing. Always wear noise protection equipment (ear plugs or ear muffs) to protect your hearing.

Continual and regular users should have their hearing checked regularly.

Wear protective helmet, eye and ear protection

The saw

Parts of the chain saw: illustrations and description of parts see page 16.

WARNING !

Never modify a chain saw in any way. Only attachments supplied by MAKITA or expressly approved by MAKITA for use with the specific saw are authorized.

WARNING !

Bow guide bars substantially increase the potential for kickback and severe or fatal injury due to the greater kickback zone of the bow design. Bow guide bars are **not recommended** for use on MAKITA chain saws nor are they approved by the ANSI B 175.1-1991 chain saw safety standard.

The use of the saw

Transporting the chain saw

WARNING!

Always stop the engine before putting a chain saw down or carrying it. Carrying a chain saw with the engine running is extremely dangerous. Accidental acceleration of the engine can cause the chain to rotate.
Avoid touching the hot muffler.

4

By hand: When carrying your saw by hand, the engine must be stopped and the saw must be in the proper position.
The chain protection cover should be over the chain and the guide bar must point backwards. When carrying your saw the bar should be behind you (fig. 4).

By vehicle: When transporting in a vehicle, keep chain and bar covered with the chain guard. Properly secure your saw to prevent turnover, fuel spillage and damage to the saw. Make sure the saw is not exposed to heat or sparks.

Chain saw operating instructions

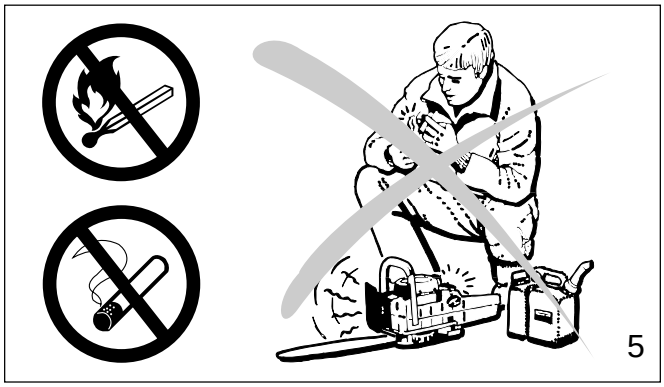
For assembly follow the procedure in the appropriate section "Mounting Guide Bar and Chain" of this manual. MAKITA chain, guide bar and sprocket must match each other (see the appropriate section in this manual).

WARNING!

Proper tension of the chain is extremely important. In order to avoid false setting the tensioning procedure must be followed as described in this manual. Always make sure the hexagonal nut(s) for the sprocket guard is (are) tightened securely after tensioning the chain. Check chain tension once more after having tightened the nuts and thereafter at regular intervals (always before starting to work). If the chain becomes loose while cutting, shut off the engine and then tighten. Never try to tighten the chain while the engine is running!

Fueling

Your MAKITA saw uses on oil-gasoline mixture for fuel (see chapter "Fuel" of this manual).

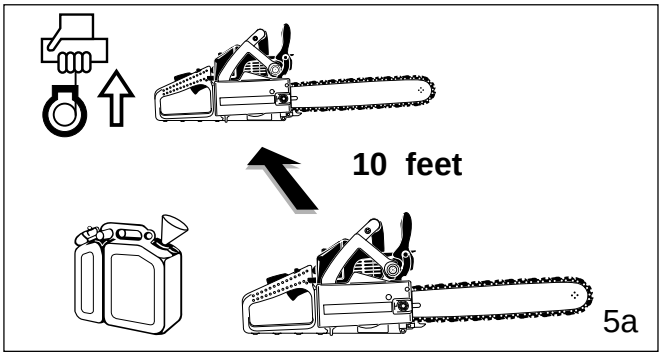

5

WARNING!

Gasoline is an extremely flammable fuel. Use extreme caution when handling gasoline or fuel mix. Do not smoke or bring any sparks or flame near the fuel (fig. 5).

Fueling instructions

Fuel your chain saw in well ventilated areas or outdoors. Always shut off the engine and allow it to cool before refueling. Select bare ground for fueling and move the chain saw at least 10 feet (3 m) from fueling spot before starting the engine (fig. 5a).



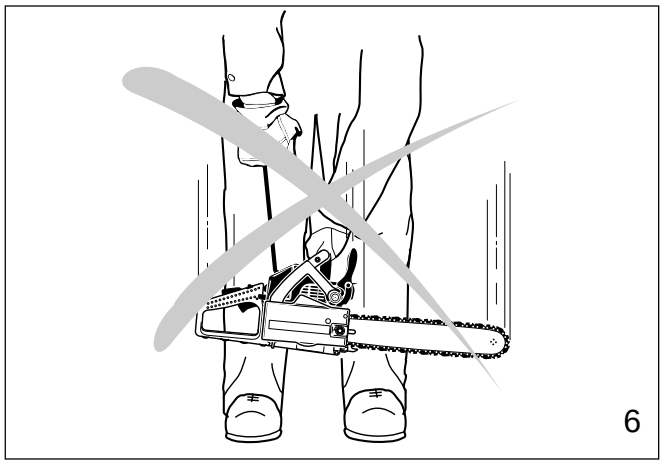
5a

Wipe off any spilled fuel before starting your saw and check for leakage.

Check for fuel leakage while refueling and during operation. If fuel or oil leakage is found, do not start or run the engine until leak is fixed and spilled fuel has been wiped away. Clothing with fuel on it has to be changed immediately (this is a danger to your life!). Avoid skin contact with fuel. Never loosen or remove the cap of the fuel tank while the engine is running.

Starting

Do not drop start. This method is very dangerous because you may lose control of the saw (fig. 6).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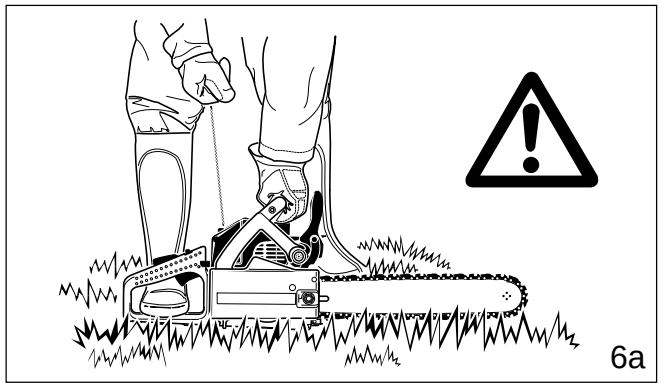

6a

Place the chain saw on firm ground or other solid surface in an open area. Maintain a good balance and secure footing. Place your right foot through the rear handle opening and firmly grasp the front handle with your left hand (fig. 6a).

Be absolutely sure that guide bar and chain are clear of you or all other obstructions and objects, including the ground, because when the engine starts in semi-throttle position, engine speed will be fast enough for the clutch to engage the sprocket and turn the chain which may cause a kickback.
Never attempt to start the saw when the guide bar is in a cut or kerf.

When you pull the starter grip, don't wrap the starter rope around your hands. Do not allow the grip to snap back, but guide the starter rope slowly back to permit the rope to rewind properly. Failure to follow this procedure may result in injury to hand or fingers and may damage the starter mechanism.

Important adjustments

WARNING!

At correct idle speed, chain should not turn. For directions to adjust idle speed, see the appropriate section of this instruction manual.

Do not use a saw with incorrect idle speed adjustment. Adjust the idle speed yourself according to the appropriate section of this manual.

Have your MAKITA dealer check your saw and make proper adjustments or repairs.

Check the saw chain tension frequently, especially just after installing a new chain. New chains may stretch more during their initial use. A properly adjusted saw chain can be pulled freely around the guide bar by hand without sagging. Always stop the engine and wear gloves when checking or adjusting the chain tension.

Working conditions

Operate your chain saw only outdoors. Operate the saw under good visibility and daylight conditions only.

WARNING!

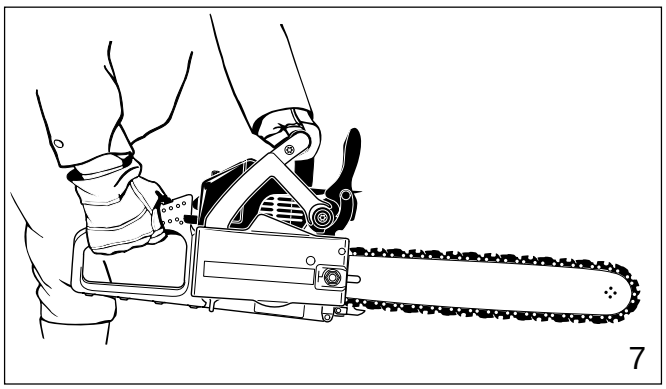
Take extreme care in wet and freezing weather (rain, snow, ice). Put off the work when the weather is windy, stormy or rainfall is heavy. Clear the area where you are working.

WARNING!

Avoid stumbling on obstacles such as stumps, roots or rocks and watch out for holes or ditches. Be extremely cautious when working on slopes or uneven ground. There is increased danger of slipping on freshly debarked logs.

Cutting instructions

Always hold the saw firmly with both hands when the engine is running. Place your left hand on the tubular handle and your right hand on grip and throttle lever. Left-handers should follow these instructions too.

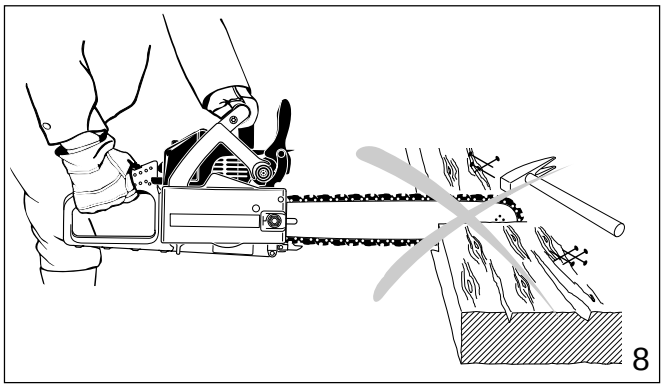

7

Wrap your fingers tightly around the handles, keeping the handles cradled between your thumb and forefinger (fig. 7). With your hands in this position, you can best oppose and absorb the push, pull and kickback forces of your saw without having it slip out of your grip (see section of reactive forces). Make sure your chain saw handle and grip are in good condition and free of moisture, pitch, oil or grease.

Always start a cut with the chain running at full speed and the spike bar in contact with the wood.

WARNING!

Never use the saw with one hand. You cannot control reactive forces (see pages 9 to 11) and may lose control of the saw.


8

WARNING!

Do not operate your chain saw in semi-throttle position. Cutting in this position does not permit the operator proper control of the saw or chain speed.

WARNING!

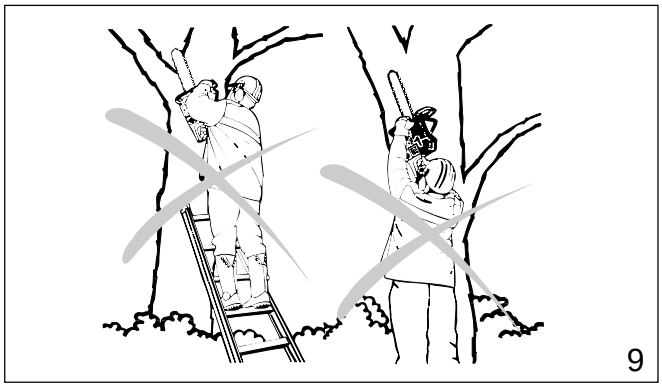
Never come too close to a rotating chain with your hands or body.

WARNING!

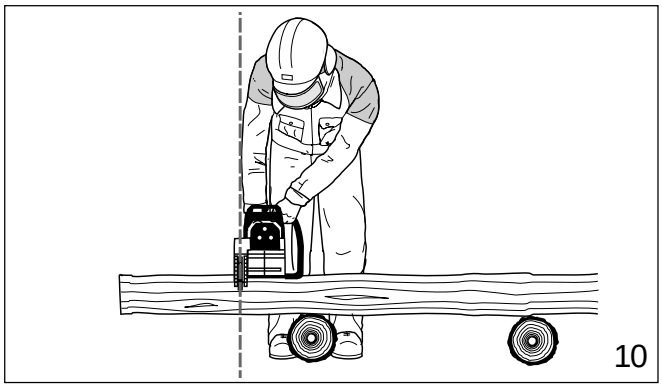
Do not cut any material other than wood or wooden objects.

Use your chain saw for cutting only. It is not designed for prying or shoveling away limbs, roots or other objects.

When sawing, make sure that the saw chain does not touch any foreign materials such as rocks, nails and the like (fig. 8). Such objects may be flung off, damage the saw chain or cause the saw to kick back.



In order to keep control of your saw, always maintain a firm foothold. Never work on a ladder, in a tree or on any other insecure support. Never use the saw above shoulder height (fig. 9).



Position the chain saw in such a way that your body is clear of the cutting attachment whenever the engine is running (fig. 10).

Don't put pressure on the saw when reaching the end of a cut. The pressure may cause the bar and rotating chain to pop out of the cut or kerf, go out of control and strike the operator or some other object. If the rotating chain strikes some other object a reactive force (see pages 10 to 12) may cause the chain to strike the operator.

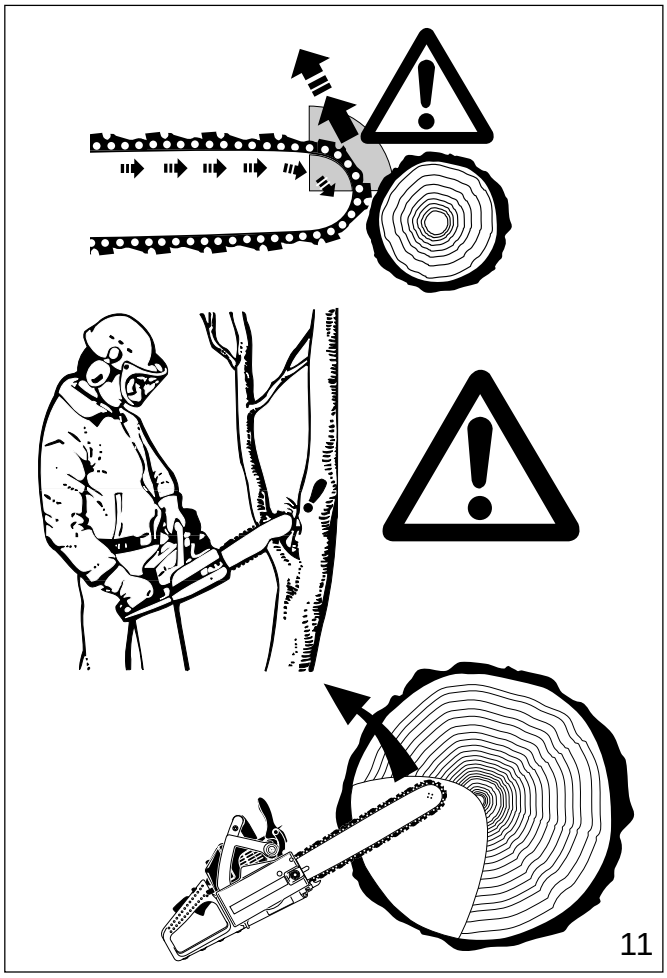
Reactive forces during the cut, including kickback

WARNING!

Reactive forces, that may occur during any cut are kickback, pushback and pull-in. Reactive forces can be dangerous! In any chain saw, the powerful force used to cut wood can be reversed (and work against the operator).

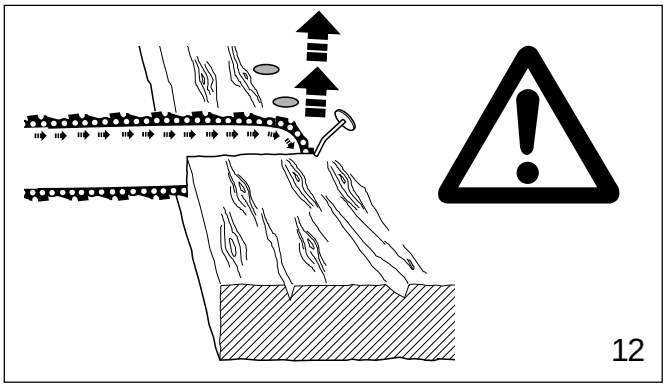
If the rotating chain is suddenly stopped by contact with any solid object like a log or branch or is pinched, the reactive forces instantly occur. These reactive forces may result in loss of control which may, in turn, cause serious or fatal injury. An understanding of the causes of these reactive forces may help you avoid loss of control.

The most common reactive forces are
- kickback,
- pushback,
- pull-in.



Kickback:

Kickback occurs when the upper quadrant of the bar nose contacts a solid object in the wood or is pinched (fig. 11). The reaction of the cutting force of the chain causes a rotational force of the chain saw in the direc tion opposite to the chain movement, mainly in the plane of the bar. This may fling the bar in an uncontrolled arc towards the operator.



This reaction can occur in a fraction of a second and under some circumstances, cause the guide bar and chain to strike the operator with enough force to cause severe or fatal injury. It may also occur during limbing. It also occurs when the nose of the guide bar is pinched unexpectedly, unintentionally contacts solid material in the wood (fig.12) or is incorrectly used to begin a plunge or boring cut.

The greater the force of the kickback reaction, the more difficult it becomes for the operator to control the saw.

Many factors influence the occurence and force of the kickback reaction. The type of bar and saw chain you use is a factor in the force of the kickback reaction.

The speed of contact at which the cutter contacts the object.
Kickback force increase with the rate of impact.

The contact angle between the nose of the bar and the foreign object (fig. 11).
Kickback is most pronounced in the upper quadrant of the bar nose.

MAKITA chain types are designed to reduce kickback forces.

The depth gauges:
Improper lowering of the depth gauges also increases the risk of a kickback.

Saw chain cutter sharpness:

WARNING!

A dull improperly sharpened chain may increase the risk of kickback. Always cut with a properly sharpened chain.

Devices for reducing the risk of kickback injury

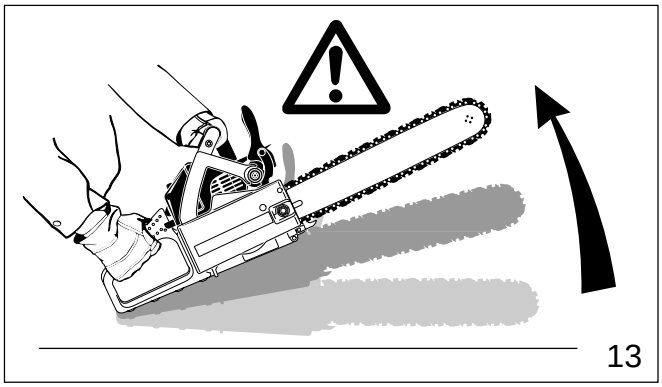
MAKITA have developed a special chain brake to reduce the risk of kickbacks.

This chain brake increases the safety factor on the job, e.g. when the saw suddenly bucks upwards the chain stops rotating within a fraction of a second. A deflection guard on the disengaging lever of the chain brake and a scoop rear handle ensure that the operator's hands are fully protected at all times.

Kickback tendency increases as the radius or size of the guide bar nose increases. MAKITA have developed guide bars with small nose radius, to reduce the kickback tendency.

WARNING!

No chain brake prevents kickback.
These brakes are designed only to stop the chain, if activated.
To ensure a proper operation of the chain brake, it must be properly maintained. Furthermore, there must be a sufficient distance between the operator and the bar to ensure that the chain brake has sufficient time to activate and stop the chain before potential contact with the operator.


13

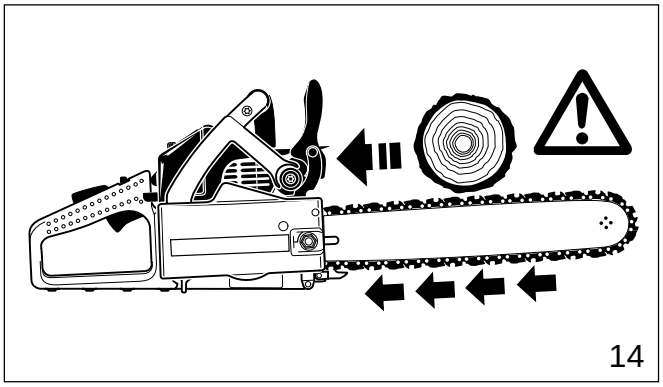
To avoid kickback

The best protection from personal-injury that may result from kickback is to avoid kickback situations:

1. Hold the chain saw firmly with both hands and maintain a secure grip.
2. Be aware of the location of the guide bar nose at all times.
3. Never bring the nose of the guide bar in contact with any object. Do not cut limbs with the nose of the guide bar. Be especially careful with small, tough limbs, small size brush and saplings which may easily catch the chain.
4. Don't overreach.
5. Don't cut above shoulder height.
6. Begin cutting and continue at full throttle.
7. Cut only one log at a time.
8. Use extreme caution when re-entering a previous cut.
9. Do not attempt plunge cuts (see page 13) if you are not experienced with these cutting techniques.
10. Be alert for shifting of the log or other forces that may cause the cut to close and pinch the chain.
11. Maintain saw chain properly. Cut with a correctly sharpened, properly tensioned chain at all times.
12. Stand to the side of the cutting path of the chain saw.

Pushback:

Pushback occurs when the chain on the top of the bar is suddenly stopped when it is pinched, caught or encounters a foreign object in the wood. The reaction of the chain drives the saw straight back toward the operator causing loss of saw control. Pushback frequently occurs when the top of the bar is used for cutting (fig. 14).



14

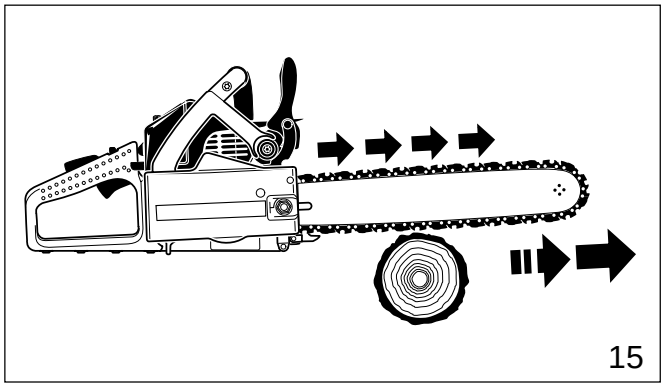
To avoid pushback

1. Be alert to forces or situations that may cause material to pinch the top of the chain.
2. Do not cut more than one log at a time.
3. Do not twist the saw when withdrawing the bar from a plunge cut or under buck cut (figures 25 to 27 and 33, pages 13 and 14), because the chain can pinch.

Pull-in:

Pull-in occurs when the chain on the bottom of the bar is suddenly stopped. The chain on the bottom of the bar stops when it is pinched, caught or encounters a foreign object in the wood (see fig. 15). The reaction of the chain pulls the saw forward, causing the operator to lose control.

Pull-in frequently occurs when the spike bar of the saw is not held securely against the tree or limb and when the chain is not rotating at full speed before it contacts the wood.



15

WARNING!

Use extreme caution when cutting small size brush and saplings which may easily catch the chain and pull you off balance.

To avoid pull-in

1. Always start a cut with the chain rotating at full speed and the spike bar in contact with the wood.

2. Pull-in may also be prevented by using plastic wedges to open the kerf or cut.

Cutting techniques

Felling

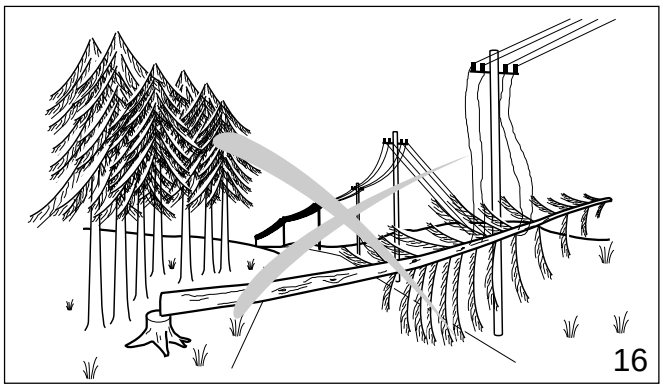
Felling is cutting down a tree.

Before felling a tree, consider carefully all conditions which may affect the direction of fall, including:

The intended direction of the fall.
The neutral lean of the tree.
Any unusually heavy limb structure.
Surrounding trees and obstacles.
The wind direction and speed.

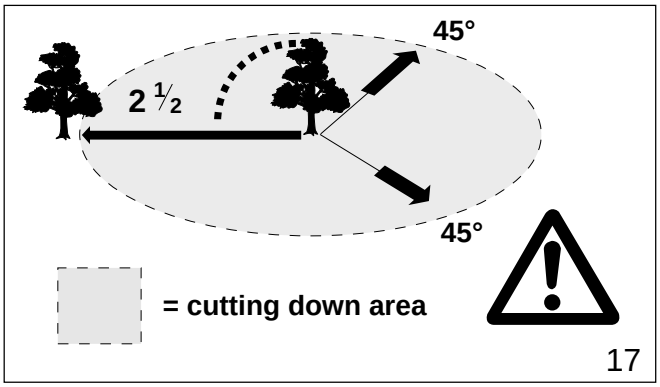
WARNING!

Always observe the general condition of the tree. Look for decay and rot in the trunk. If it is rotted inside, it could snap and fall toward the operator while being cut.
Also look for broken or dead branches which could vibrate loose and fall on the operator. When felling on a slope, the operator should stand on the up-hill side.



16

When felling in the vicinity of roads, railways and power lines, etc., take extra precautions (see fig. 16). Inform the police, utility company or railway authority before beginning to cut.

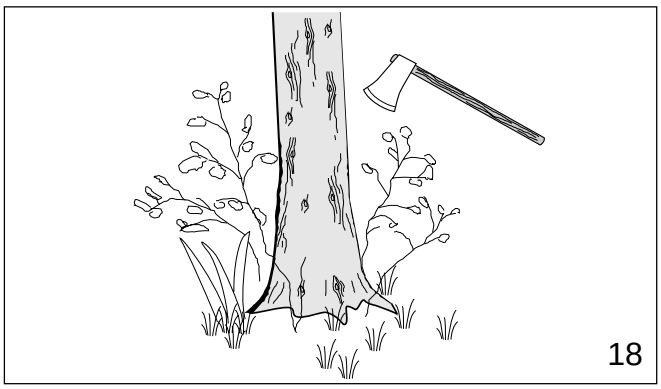


When felling, maintain a distance of at least 2 1/2 tree lengths from the nearest person (see fig. 17).

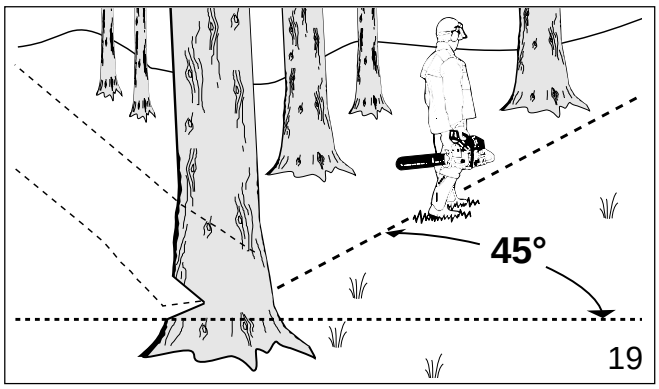
Note:

The noise of your engine may drown any warning call.

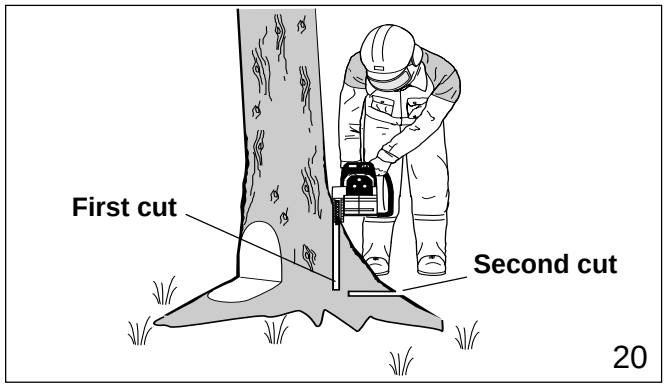
Felling instructions:



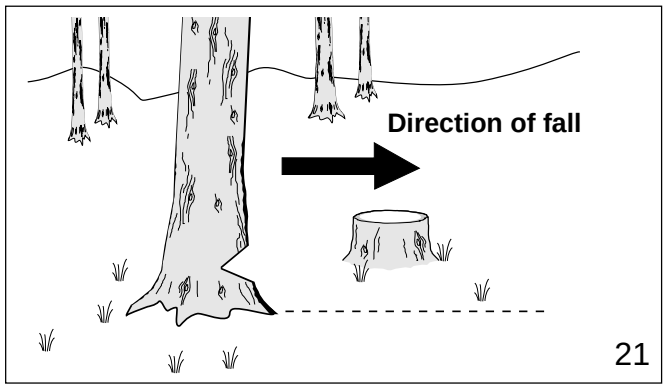
First clear the tree base and work area from interfering limbs and brush and clean its lower portion with an axe (see fig. 18).

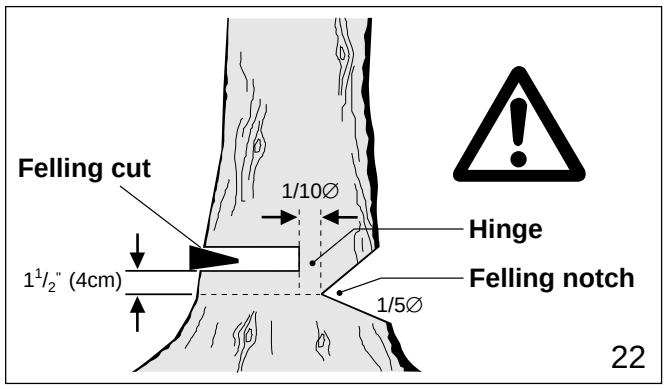


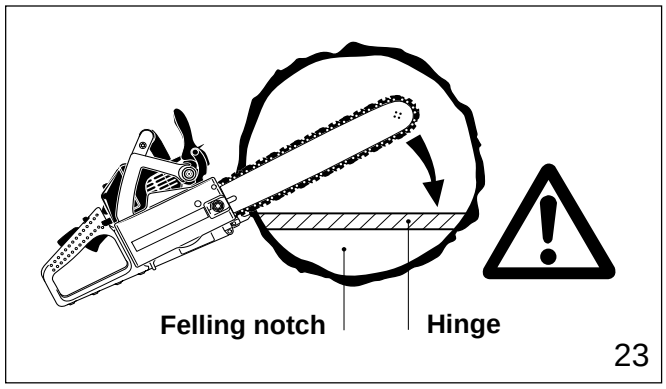
Then, establish a path of escape and remove all obstacles. This path should be opposite to the planned direction of the fall of the tree and at a 45° angle (fig. 19). An alternate path must also be selected. Place all tools and equipment a safe distance away from the tree, but not on the escape path.



If the tree has large buttress roots, cut into the largest buttresses vertically first (horizontally next) and remove (fig. 20).







Then, determine the placement of the felling notch (fig. 21). The felling notch when properly placed determines the direction in which the tree will fall. It is made perpendicular to the line of fall and should be as close to the ground as possible. Cut the felling notch to a depth of about one-fifth to one-fourth of the trunk diameter (fig. 22). It should be in no case higher than it is deep. Make the felling notch very carefully.

Begin the felling cut slighty higher than the felling notch and on the opposite side of the tree (fig. 22). Then cut horizontally through towards the felling notch. Apply the chain saw with its spikes directly behind the uncut portion of wood and cut toward the notch (fig. 23). Leave approximately 1/10 of the tree diameter uncut! This is the hinge (fig. 23). Do not cut through the hinge because you could lose control of the direction of the fall. Drive wedges into the felling cut where necessary to control the direction of the fall. Wedges should be of wood, light alloy or plastic - never of steel, which can cause kickback and damage to the chain.

Always keep to the side of the falling tree. When the tree starts to fall, shut off the engine, withdraw the bar and walk away on the pre-planned escape path. Watch out for falling limbs.

WARNING!

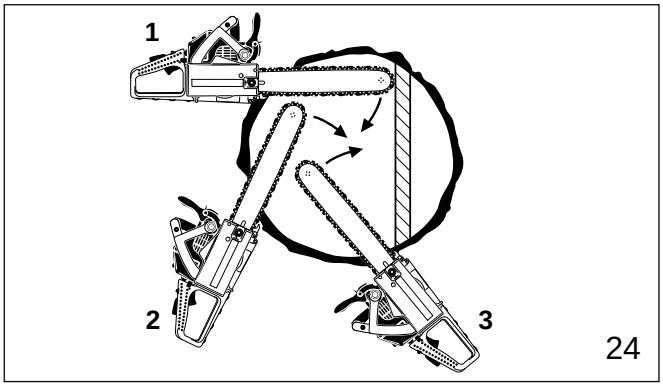
Be extremely careful with partially fallen trees which are poorly supported.

When the tree hangs or for some other reason does not fall completely, set the saw aside and pull the tree down with a cable winch, block and tackle or tractor. If you try to cut it down with your saw, you may be injured.

Sectioning Method

WARNING!

Felling a tree that has a diameter greater than the length of the guide bar requires use of either the sectioning or plunge-cut method. These methods are extremely dangerous because they involve the use of the nose of the guide bar and can result in kickback. Only properly trained professionals should attempt these techniques.

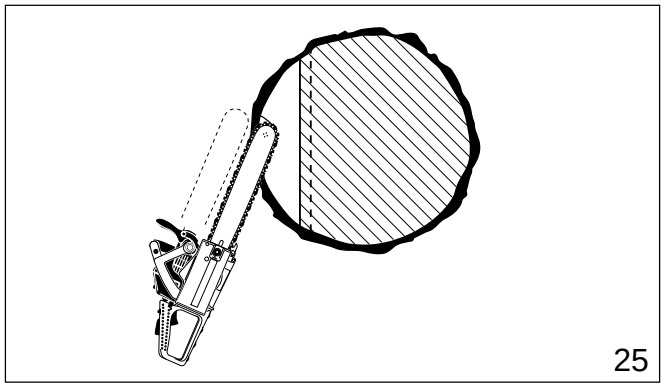


24

For the sectioning method (fig. 24) make the first cut with the guide bar fanning in toward the hinge. Then, using the bumper spike as a pivot, reposition the saw for the next cut. Avoid repositioning the saw more than necessary. When repositioning for the next cut, keep the guide bar fully engaged in the kerf to keep the felling cut straight. If the saw begins to pinch, insert a wedge to open the cut. On the last cut, do not cut the hinge.

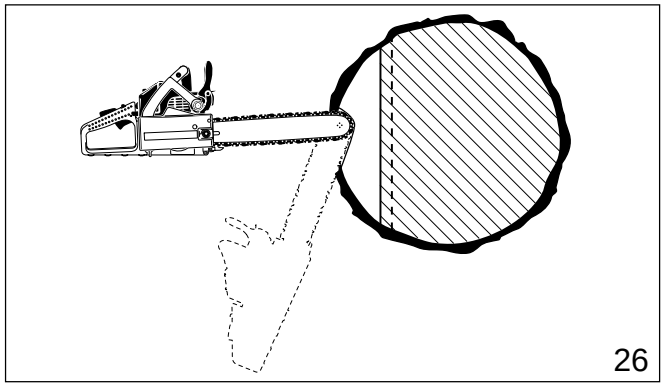
Plunge-Cut Method

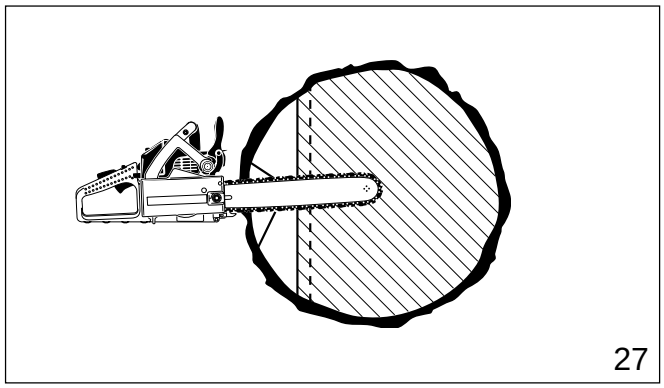
Timber having a diameter more than twice the length of the guide bar requires the use of the plunge-cut method before making the felling cut.
First, cut a large, wide notch. Make a plunge cut in the center of the notch.
The plunge cut is made with the guide bar nose. Begin the plunge cut by applying the lower portion of the guide bar nose to the tree at an angle (fig. 25). Cut until depth of the kerf is about the same as the width of the guide bar (fig. 26). Next, align the saw in the direction

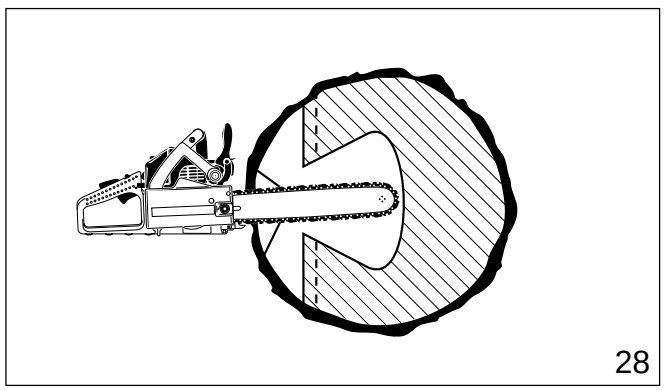

25

in which the recess is to be cut. With the saw at full throttle, insert the guide bar in the trunk (fig. 27).

Enlarge the plunge cut as shown in illustration (fig. 28)


26


27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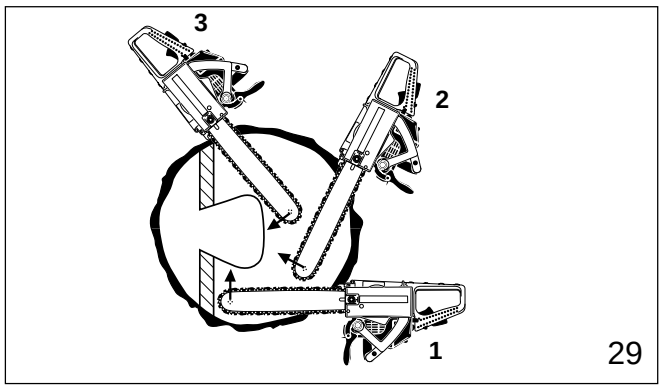


29

WARNING!

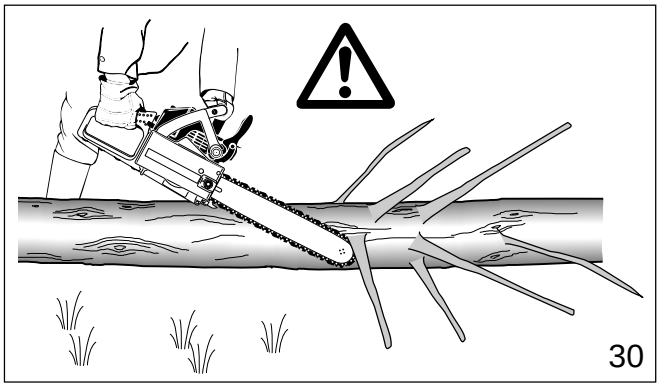
There is an extreme danger of kickback at this point. Extra caution must be taken to maintain control of the saw. To make the felling cut, follow the sectioning method described previously (fig. 29). If you are inexperienced with a chain saw plunge-cutting should not be attempted. Seek the help of a professional.

Limbing

Limbing is removing the branches from a fallen tree.

WARNING!

There is an extreme danger of kickback during the limbing operation. Do not work with the nose of the bar. Be extremely cautious and avoid contacting the log or other limbs with the nose of the guide bar. Do not stand on a log while limbing it - you may slip or the log may roll.


30

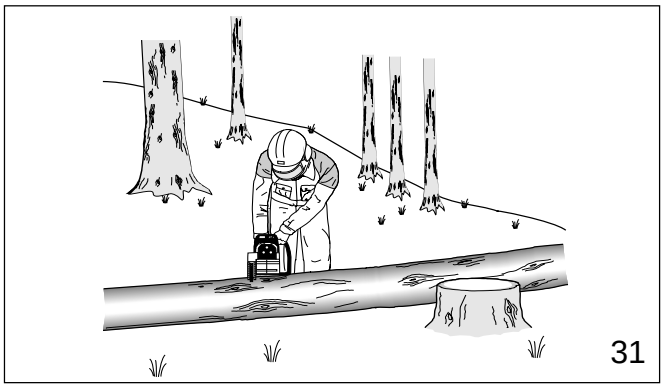
Start limbing by leaving the lower limbs to support the log off the ground (fig. 30). Always cut from the top of the limb. Do not underbuck freely hanging limbs. A pinch may result or the limb may fall, causing loss of control. If a pinch occurs, stop the engine and remove the saw, by lifting the limb.

WARNING!

Be extremely cautious when cutting limbs under tension. The limbs could spring back toward the operator and cause loss of control of the saw or injury to the operator.

Bucking

Bucking is cutting a log into sections.


31

WARNING!

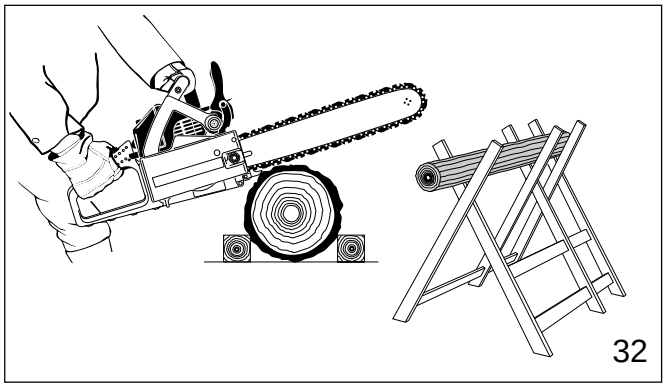
1. When bucking, do not stand on the log. Make sure the log will not roll down-hill. If on a slope, stand on the up-hill side of the log (see fig. 31). Watch out for rolling logs.

WARNING!

2. Cut only one log at a time.

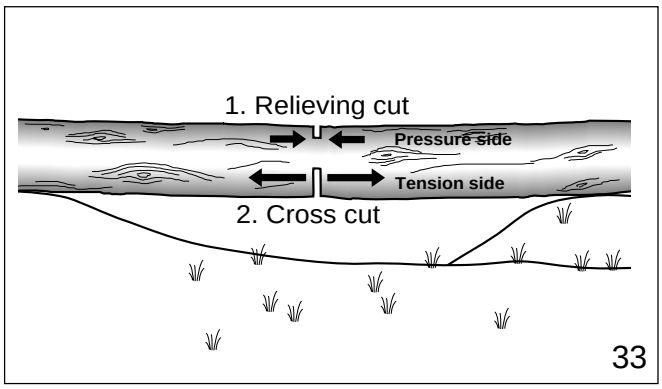
WARNING!

3. Shattered wood should be cut very carefully. Sharp slivers of wood may be caught and flung in the direction of the operator of the saw.

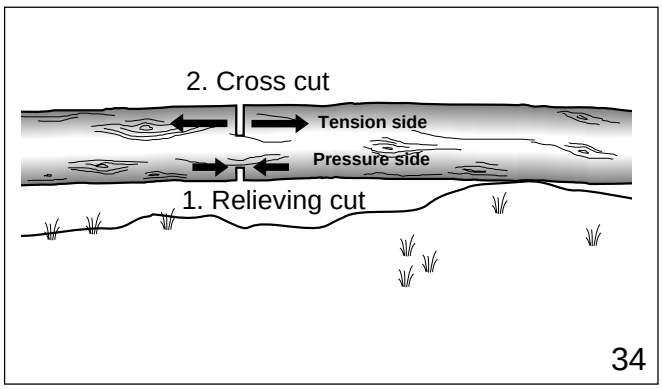

32

WARNING!

4. When cutting small logs, use a sawhorse (fig. 32). Never permit another person to hold the log. Never hold the log with your leg or foot.



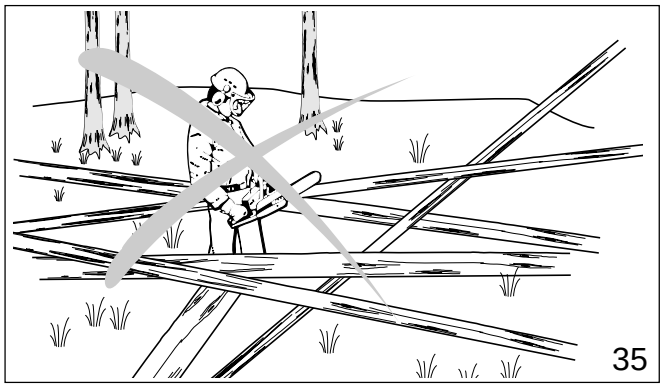
33



34

WARNING!

5. Logs under strain require special attention to prevent the saw from pinching. The first cut is made on the compression side to relieve the stress on the log (see fig. 33, 34). The bucking cut is then made as shown. If the saw pinches, stop the engine and remove it from the log.


35

WARNING!

6. Only properly trained professionals should work in an area where the logs, limbs and roots are tangled (i. e. a blowdown area, fig. 35). Working in blowdown areas is extremely hazardous.

WARNING!

7. Drag the logs into a clear area before cutting. Pull out exposed and cleared logs first.

Maintenance and Repair

Never operate a chain saw that is damaged, improperly adjusted or not completely or securely assembled. Follow the maintenance and repair instructions in the appropriate section of this manual.

WARNING !

Always stop the engine and make sure that the chain is stopped before commencing any maintenance or repair work or cleaning the saw. Do not attempt any maintenance or repair work not described in this manual. Have such work performed by your MAKITA service shop only.

Maintaining and storing the saw

Keep the chain, bar and sprocket clean and lubricated; replace worn sprockets or chains.

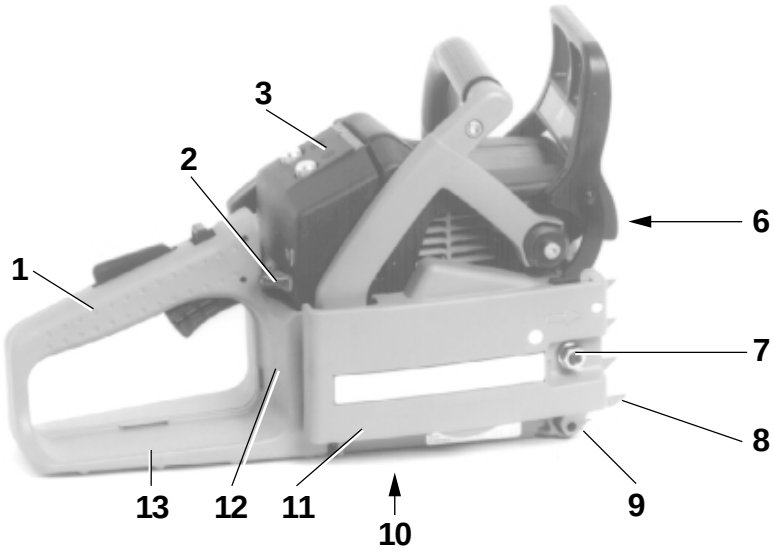
Keep the chain sharp. You can spot a dull chain when easy-to-cut wood becomes hard to cut and burn marks appear on the wood.

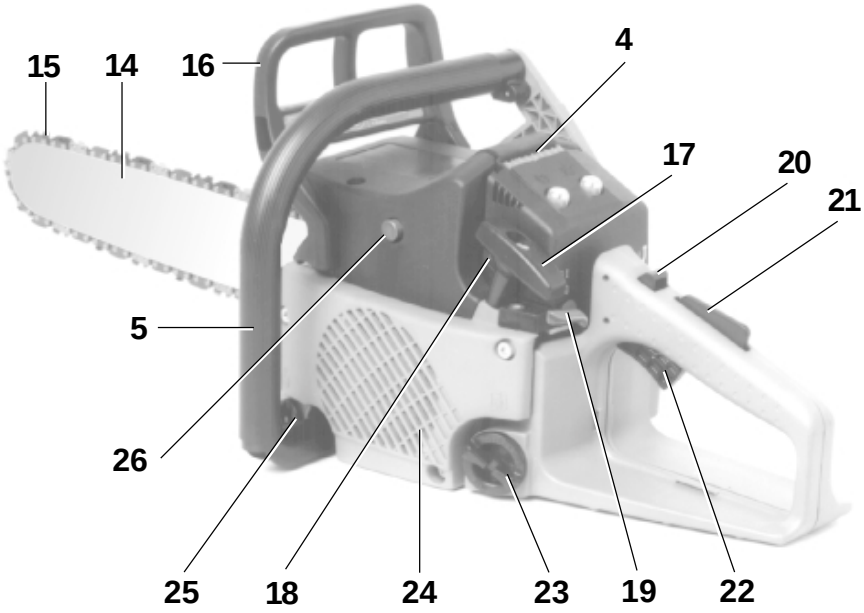
Keep the chain at proper tension. Tighten all nuts, bolts and screws except the carburetor adjustment screws after each use.

Keep spark plug and wire connection tight and clean.

Store saws in a high or locked place, away from children.

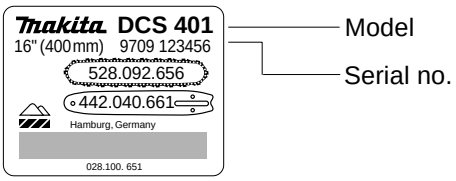
Denomination of components





Identification plate

(example for type DCS 401)



Indicate when ordering spare parts!

1 Tubular handle
2 Choke
3 Filter cover
4 Insert for normal / winter operation
5 Tubular handle
6 Muffler
7 Retaining nut
8 Spike bar
(toothed stop for holding saw steady against wood)
9 Chain catch
10 Automatic oil pump (bottom side)
11 Sprocket guard
12 Identification plate
13 Hand guard
14 Guide bar
15 Chain
16 Hand guard (release for chain brake)
17 Starter grip
18 Adjusting screws "speed-H-L" for carburetor
19 I/STOP-switch
20 Stop knob for halfway throttle
21 Safety locking button
22 Throttle lever
23 Fuel tank plug
24 Fan housing with starting assembly
25 Oil tank plug
26 Starting valve (only DCS-341 and DCS-401)

Technical data	DCS 340	DCS 341	DCS 400	DCS 401
Single-cylinder two-stroke				
Piston displacement	2.0 cu. in (33 cm^3)	2.0 cu. in (33 cm^3)	2.4 cu. in (39 cm^3)	2.4 cu. in (39 cm^3)
Cylinder bore	1.45" (37 mm)	1.45" (37 mm)	1.57" (40 mm)	1.57" (40 mm)
Piston stroke	1.22" (31 mm)	1.22" (31 mm)	1.22" (31 mm)	1.22" (31 mm)
Max. power at speed	1.4/9,000 kW/rpm	1.4/9,000 kW/rpm	1.7/9,000 kW/rpm	1.7/9,000 kW/rpm
Max. torque at speed	1.7/6,500 Nm/rpm	1.7/6,500 Nm/rpm	2.0/6,500 Nm/rpm	2.0/6,500 Nm/rpm
Idling speed	2,600 rpm	2,600 rpm	2,600 rpm	2,600 rpm
Ignition system				
Electronic, without breaker				
Spark plug	NGK BPMR 6F	NGK BPMR 6F	NGK BPMR 6F	NGK BPMR 6F
or Spark plug	CHAMPION RDJ-7Y	CHAMPION RDJ-7Y	CHAMPION RDJ-7Y	CHAMPION RDJ-7Y
Electrode gap	.020" (0.5 mm)	.020" (0.5 mm)	.020" (0.5 mm)	.020" (0.5 mm)
Fuel system				
Carburetor (for Canada)	WALBRO WT 174	WALBRO WT 174	WALBRO WT 174	WALBRO WT 174
Carburetor (for USA)	WALBRO WT 466	WALBRO WT 466	WALBRO WT 466	WALBRO WT 466
(all position diaphragm carburetor with integral fuel pump)				
Air filter	Robkoflok	Robkoflok	Robkoflok	Robkoflok
Fuel tank capacity	13.3 oz. (0.4 l)	13.3 oz. (0.4 l)	13.3 oz. (0.4 l)	13.3 oz. (0.4 l)
Fuel mixture	see chapter "Fuel"	see chapter "Fuel"	see chapter "Fuel"	see chapter "Fuel"
Weight				
without cutting attachment	8 lbs. 9 oz. (3.9 kg)	8 lbs. 9 oz. (3.9 kg)	8 lbs. 13 oz. (4.0 kg)	8 lbs. 13 oz. (4.0 kg)
Cutting attachment				
Guide bar	sprocket nose bar	sprocket nose bar	sprocket nose bar	sprocket nose bar
Cutting length	12" (30 cm) 14" (35 cm) 16" (40 cm)	12" (30 cm) 14" (35 cm) 16" (40 cm)	12" (30 cm) 14" (35 cm) 16" (40 cm)	12" (30 cm) 14" (35 cm) 16" (40 cm)
Safety saw chain (pitch) 3/8"	(528 092 ...)	(528 092 ...)	(528 092 ...)	(528 092 ...)
Drive link gauge .050"	X	X	X	X
Chain sprocket 6 teeth	(028 223 310)	(028 223 310)	(028 223 310)	(028 223 310)
Chain lubrication	fully automatic oil pump	fully automatic oil pump	fully automatic oil pump	fully automatic oil pump
Oil tank capacity	7.1 oz. (0.21 l)	7.1 oz. (0.21 l)	7.1 oz. (0.21 l)	7.1 oz. (0.21 l)

Approved bar and chain combinations

"Low-kickback saw chain is a chain which has met the kickback performance requirements of ANSI B 175.1-1991 (American National Standard for Power Tools-Gasoline-Powered Chain Saws-Safety Requirements) when tested on the representative sample of chain saws below 3.8. C.I.D. specifed in ANSI B 175.1-1991". The approved bar and chain combinations are low kickback chains according to ANSI B 175.1-1991 and also meet the kickback requirements of CSA Z62.3-96 for chain saws below 80 cm^3.

The chain saw DCS 340, DCS 341, DCS 400, DCS 401 has been approved with following guide bar and chain combinations:

	Guide bar 3/8"	**Saw chain 3/8"**
length	**Part no.**	**Part no.**
12" (30 cm)	442 030 661	528 092 646
14" (35 cm)	442 035 661	528 092 652
16" (40 cm)	442 040 661	528 092 656

"There may be other replacement bar and chain combinations available that also reduces the risk of injury from kickback".

WARNING

Do not use other replacement bars and chains unless they have been designated as meeting the ANSI B 175.1-1991 (for USA) and CSA Z62.3-96 (for Canada) kickback performance requirements on that specific powerhead, or has been designated as "low kickback" saw chain in accordance with the ANSI B 175.1-1991 (for USA) and CSA Z62.3-96 (for Canada) standard.

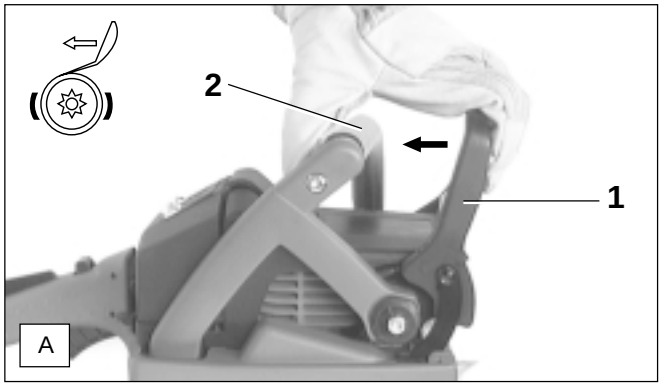
Mounting the guide bar and saw chain

Use the universal wrench delivered with the chain saw for the following work.

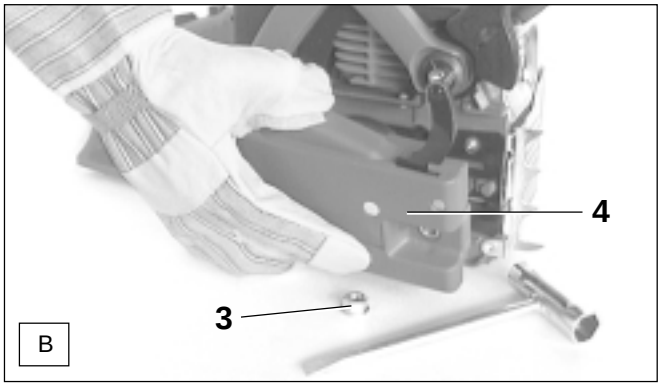
Put the chain saw on a stable surface and carry out the following steps for mounting the guide bar and chain:

CAUTION: Before doing any work on the guide bar or chain, always switch off the engine and pull the plug cap off the spark plug (see "Replacing the spark plug"). Always wear protective gloves!

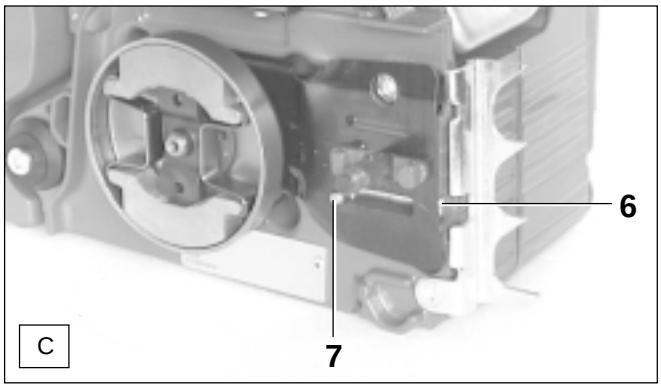
CAUTION: Start the chain saw only after having assembled it completely and inspected!



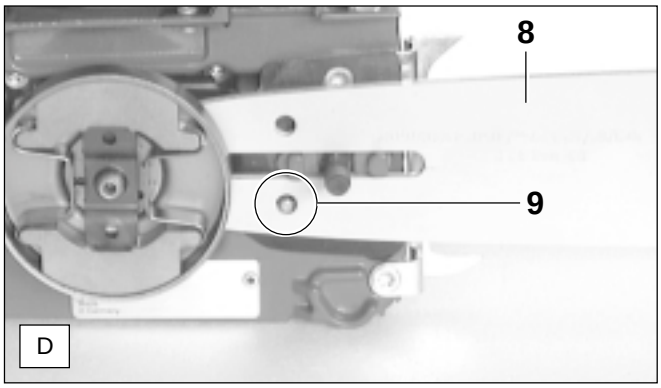
- Release the chain brake by pulling the hand guard (A/1) towards the tubular handle (A/2) until you feel it catch.



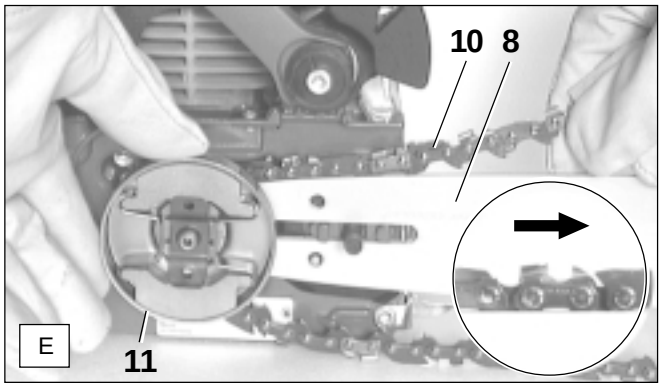
- Unscrew retaining nut (B/3).
- Pull off the sprocket guard (B/4).



- Turn the chain adjusting screw (C/6) to the left (counter-clockwise) until the pin (C/7) is at the left stop.

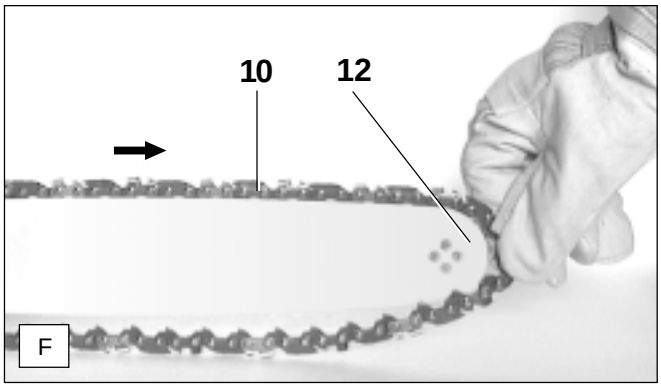


- Position the guide bar (D/8). Make sure that the pin (D/9) of the chain tightener is in the hole (circled) on the guide bar.



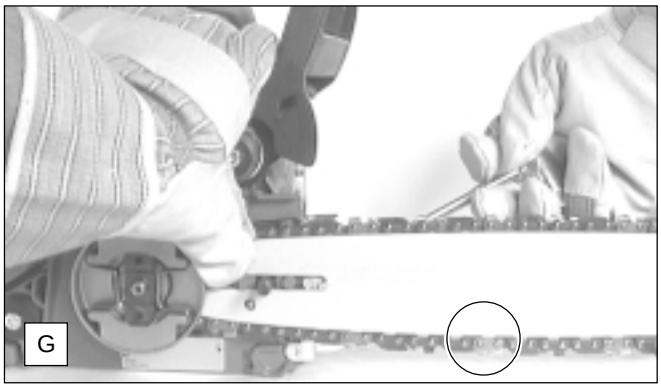
- Lift the chain (E/10) over the clutch drum and onto the sprocket (E/11). Using your right hand, guide the chain into the top guide groove on the guide bar (E/8).

NOTE: The cutting edges along the top of the chain must point in the direction of the arrow!

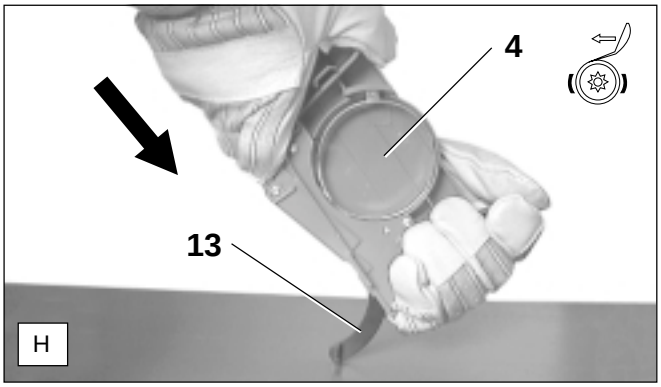


- Lead the chain (F/10) around the sprocket nose (F/12) of the guide bar.

NOTE: The chain should be easy to pull in the direction of the arrow. The clutch drum (E/11) should turn with the chain (the sprocket engages the chain).



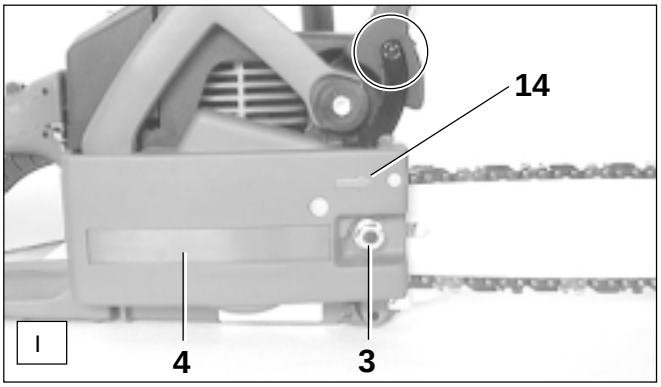
- Turn the chain tightener (C/6) to the right (clockwise) until the chain engages the guide groove of the bottom side of the bar (see circle). Press the guide bar against the housing with your left hand.



NOTE:

If the chain brake on the dismounted sprocket guard is actuated by accident, it must be released again prior to reassembly:

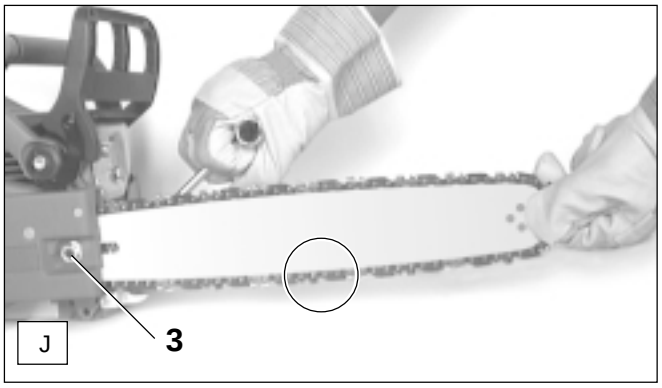
- Hold the sprocket guard (H/4) as shown (note direction of arrow) firmly with both hands and press the stop lever (H/13) against a hard surface (such as a board) until you hear it catch.



- Replace the sprocket guard (I/4), making sure that the pin on the stop lever fits into the space on the hand guard (circled).
- Manually tighten the retaining nut (I/3).

NOTE:

The arrow (I/14) on the sprocket guard shows the direction of chain travel.



Tightening the saw chain

- Slightly lift the end of the guide bar and turn the chain adjusting screw (C/6) to the right (clockwise) until the chain rests against the bottom side of the guide bar.
- While still holding up the guide bar, tighten the retaining nut (J/3) with the universal wrench.

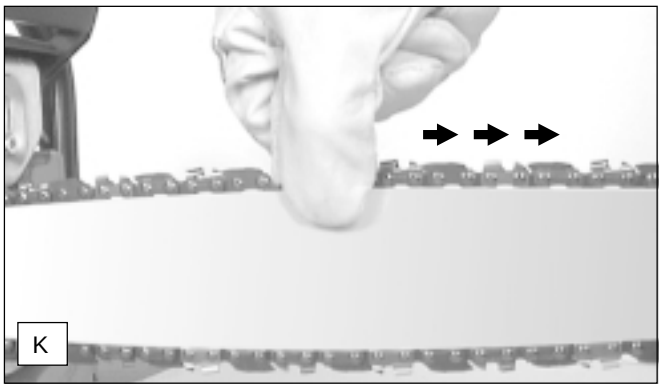
Checking the chain tension

- The tension of the chain is correct if the chain rests against the bottom side of the guide bar and can still be easily turned by hand. While doing so the chain brake must be released.
- Every new chain must be broken in for about 2 to 3 minutes. Ample chain lubrication is essential during this period. After breaking in, check chain tension and adjust, if necessary.
- When checking the chain tension the engine must be switched off.

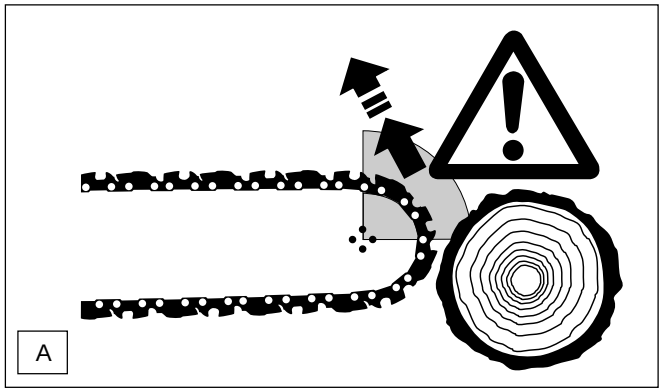
NOTE:

Check the chain tension frequently - chains tend to get longer during use! If this is not done, there is a risk of the chain jumping off the bar. It is recommended to use 2-3 chains alternatively.

In order to guarantee uniform wear of the guide bar the bar should be turned over whenever replacing the chain.

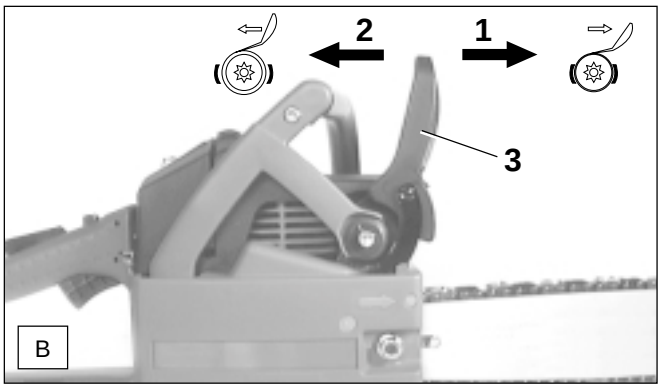


Safety chain brake



The models DCS 340/DCS 341/DCS 400 and DCS 401 comes with an inertia chain brake as standard equipment. The chain brake will automatically stop the chain if the kickback is sufficiently strong, which is caused by the tip contacting wood while the saw is running (see "SAFETY PRECAUTIONS", page 9). The chain will stop within a fraction of a second.

The chain brake is installed to block the saw chain before starting it and to stop it immediately in case of an emergency.



Engaging the chain brake (braking)

In case of kickback the chain brake is engaged **automatically** by inertial motion of the hand guard ((B/3).

To engage the chain brake **manually**, simply push the hand guard (B/3) forward (towards the tip of the saw) with your left hand (arrow 1).

Releasing the chain brake

Pull the hand guard (B/3) towards you (arrow 2) until you feel it catch. The brake is now released**.**

Fuel / Refuelling

Gasoline		50:1 MAKITA oil	40:1 other oil
1.0 Us-gal.	(3.7 l)	2.5 floz. (75 cm³)	3.2 floz. (94 cm³)
2.5 Us-gal.	(9.4 l)	6.4 floz. (189 cm³)	8.0 floz. (236 cm³)
C 5.0 Us-gal.	(18.9 l)	12.8 floz. (378 cm³)	16.0 floz. (473 cm³)

Fuel mixture

The engine of the chain saw is a high-efficiency two-stroke engine. It runs on a mixture of gasoline and two-stroke engine oil.

The engine is designed for unleaded regular gasoline with a min. octane value of 91 ROZ (research octane number). In case no such fuel is available, you can use fuel with a higher octane value. This will not affect the engine.

In order to obtain an optimum engine output and to protect your health and the environment use unleaded fuel only. Gasoline which contens alcohol should not used in MAKITA products.

For lubricating the engine use a two-stroke engine oil (quality grade: TC-3), which is added to the fuel. The engine has been designed for use of MAKITA high-performance two-stroke engine oil and a mixture ratio of only 50:1 to protect the environment. In addition, a long service life and reliable operation with a minimum emission of exhaust gases are ensured.

MAKITA high-performance two-stroke engine oil is available in the following sizes to suit your individual requirements:

1 l order number 980 008 607

100 ml order number 980 008 606

In case MAKITA high-performance two-stroke engine oil is not available, it is urgently recommended to use a mixture ratio of 40:1, as otherwise optimum operation of the engine cannot be guaranteed.

The correct mixture ratio:

50:1 when using MAKITA high-performance two-stroke engine oil, i. e. mix 50 parts gasoline with 1 part oil.

40:1 when using other two-stroke engine oils, i. e. mix 40 parts gasoline with 1 part oil.

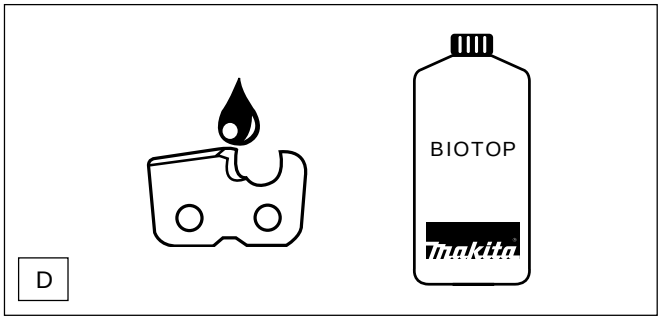
Handling and storage

Utmost care is required when handling with fuel. Fuel can contain substances which have a behavior similar to that of solvents. Fill the tank only outside or ventilated rooms. Do not inhale vapors, avoid any fuel contact with your skin. Fuel cannot be stored. Purchase only the quantity needed for a period of 4 weeks. Use licensed fuel containers only.

For preparing the fuel-oil mixture first mix the entire oil quantity with half of the fuel required, then add the remaining fuel. Thoroughly shake the mixture before pouring it into the chain saw tank.

NOTE:

It is not wise to add more engine oil than specified to ensure safe operation. This will only result in a higher production of combus-tion residues which will pollute the environment and clog the exhaust channel in the cylinder as well as the muffler. In addition, fuel consumption will rise and performance will decrease.



Chain oil

Use an oil with adhesive additive for lubricating the chain and guide bar. The adhesive additive prevents the oil from being flung off the chain too quickly.

We recommend the use of chain oil which is bio-degradable in order to protect the environment. The use of bio-degradable oil may even be required by local regulations.

The chain oil BIOTOP sold by MAKITA is made of special vegetable oils and is 100% bio-degradable. BIOTOP has been granted the "blue angel" (Blauer Umweltschutz-Engel) for being particularly environment-friendly (RAL UZ 48).

BIOTOP chain oil is available in the following sizes:

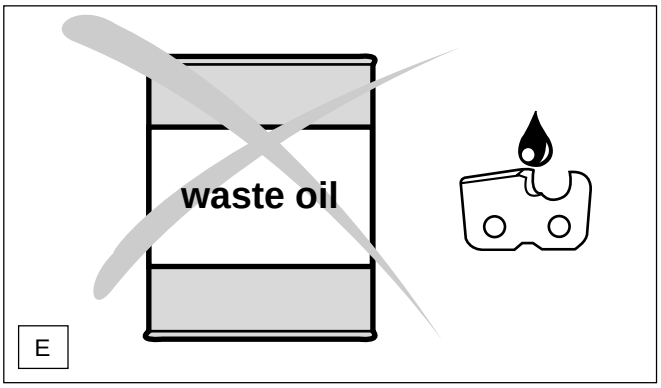
1 l	order number	980 008 610
5 l	order number	980 008 611
20 l	order number	980 008 613

Bio-degradable oil is stable only for a limited period of time. It should be used within 2 years from the date of manufacture (printed on the container).

Important note on bio-degradable chain oils

If you are not planning to use the saw again for an extended period of time (longer than the expiration date of the chain oil), empty the oil tank and put in a small amount of regular **engine oil** (SAE 30),and then run the saw for a time. This is necessary to flush out all remaining bio-degradable oil from the oil tank, oil-feed system, chain and guide bar, as many such oils tend to leave sticky residues over time, which can cause damage to the oil pump or other parts.

The next time you use the saw, fill the tank with BIOTOP chain oil again.



NEVER USE WASTE OIL

Waste oil is very dangerous for the environment.

Waste oil contains high amounts of carcinogenic substances.

Residues in waste oil result in a high degree of wear and tear at the oil pump and the sawing device.

In case of damage caused by using waste oil or unappropriate chain oil the product guarantee will be null and void.

Your salesman will inform you about the use of chain oil.

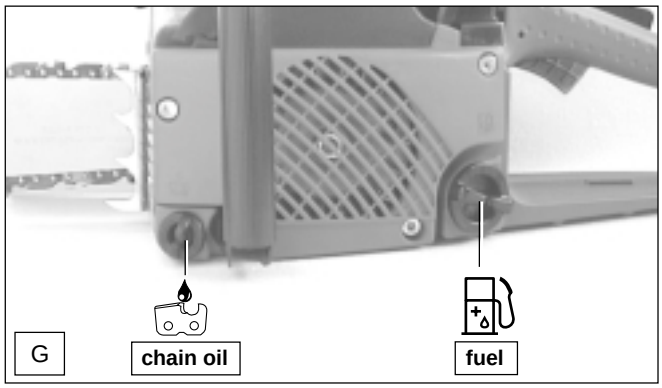
AVOID SKIN AND EYE CONTACT

Mineral oil products degrease your skin. If your skin comes in contact with these substances repeatedly and for an extended period of time, it will desiccate. Various skin deseases may result. In addition, allergic reactions are known to occur.

Eyes can be irritated by contact with oil. If oil comes into your eyes, immediately wash them with clear water.

If your eyes are still irritated, see a doctor immediately!

Refuelling



FOLLOW THE SAFETY PRECAUTIONS ON PAGE 7!

Be careful and cautious when handling fuels.

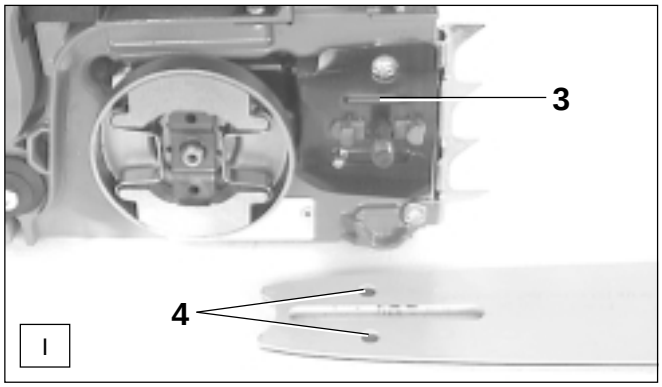
The engine must be switched off!

- Thoroughly clean the area around the plugs, to prevent dirt from getting into the fuel or oil tank.
- Unscrew the plug and fill the tank with fuel (fuel/oil mixture) or chain oil as the case may be. Fill up to the bottom edge of the filler neck. Be careful not to spill fuel or chain oil!
- Tightly screw on the plug.

Clean screw plug and tank after refuelling.

Lubricating the chain

During operation there must always be sufficient chain oil in the chain-oil tank to provide good chain lubrication. One filling is sufficient for about one half-hour of continuous operation.



To ensure troublefree operation of the oil pump the oil guide groove at the crank case (I/3) and the oil inlet bore in the guide bar (I/4) must be cleaned regularly.

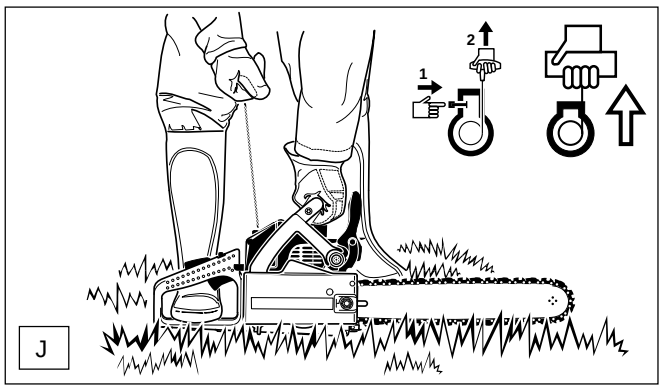
Note:

After the saw has been turned off it is normal for residual chain oil to drip from the oil feed system, the guide bar and the chain for a time. This does not constitute a defect!

Place the saw on a suitable surface.

Starting the engine

To make it easier to start, the chain saws DCS 341 and DCS 401 are equipped with a semi-automatic starting valve (K/5). Pushing this valve in reduces the amount of compression effort needed, so that it is easier to bring the engine up to starting speed when pulling the starter cable. The high pressure increase in the combustion chamber that results from the first ignitions will automatically close the starting valve (button pops back out). **Models DCS 340 and DCS 400 do not have a starting valve. Starting and carburetor sdjustment are as for models DCS 341 and DCS 401 except without the instruction "Push the starting valve".**



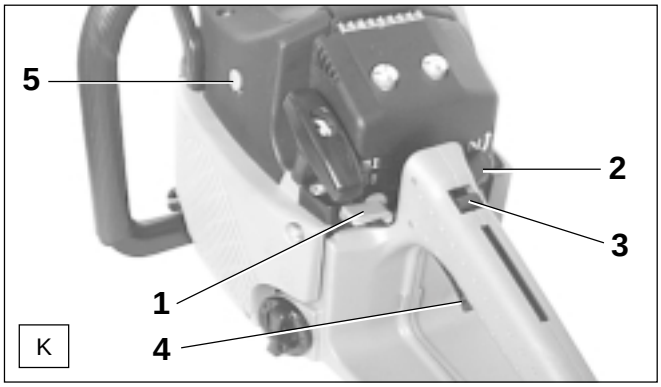
- Move at least 10 feet (3m) away from the place where you fuelled the saw.
- Make sure you have a good footing, and place the saw on the ground in such a way that the chain is not touching anything.
- Engage the chain brake (lock).
- Hold the tubular handle tightly with one hand and press the chain saw to the ground.
- Steady the rear handle by standing in the hand guard.

Cold start:

- Put the short-circuit ignition switch in the "**I**" position (K/1).
- Press the choke up (K/2).
- Press and hold down the half-throttle lock button (K/3).
- Press the throttle (K/4) slightly. The half-throttle lock (K/3) will arrest it.
- Release the grip. The throttle is now locked in half-throttle position.
- Push the starting valve (K/5) (only DCS 341 and DCS 401).
- Slowly pull out the starter cable until you notice resistance (the piston is positioned before the top dead center).
- Now pull the starter cable with a fast and forceful movement until you hear the first ignition.

CAUTION: Do not pull out the starter cable more than approx. 50 cm, and lead it back by hand.

- When you hear the first ignition, push the choke (K/2) down. Push the starting valve again (only DCS 341 and DCS 401) and pull the starter cable. As soon as the engine is running, press the throttle (K/4) to release the half-throttle lock (K/3), allowing the engine to idle.



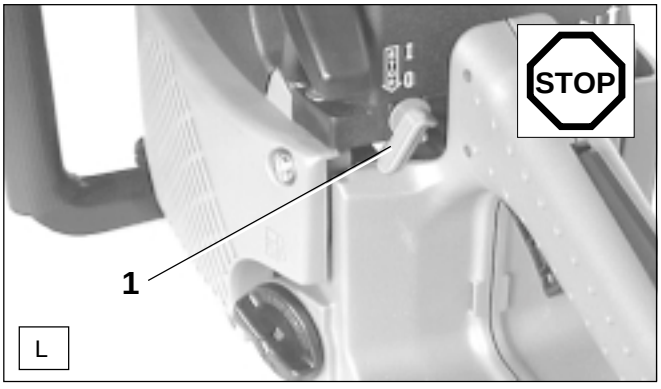
CAUTION: As soon as the engine is started it must be put in idle to prevent the chain brake from being damaged.

- Now release the chain brake.

Warm start:

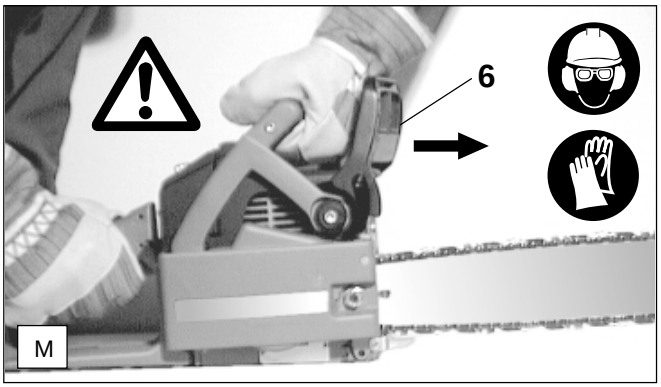
- As described above for cold starting, but without using the choke (K/2).

Stopping the engine



- Put the short-circuiting switch (L/1) in position **"O"** (STOP).

Checking the safety chain brake



Do not work with the saw without first checking the chain brake!

- Start the engine as described (make sure you have a good footing, and place the saw on the ground in such a way that the blade is free of contact).
- Grasp the tubular handle firmly with one hand and hold the grip with the other.
- With the engine running at moderate speed, press the hand guard (C/1) in the direction of the arrow with the back of your hand until the chain brake engages. The chain should stop immediately.
- Immediately release the throttle and release the chain brake.

IMPORTANT: If the chain does not stop immediately when you test the chain brake, do NOT use the saw! Take the saw to a MAKITA service center.

Adjusting the carburetor

CAUTION:

Optimum perfornance can only be achieved if the carburetor is adjusted correctly. For this work, which should be carried out by an expert, the engine must be warmed up for a period of 3-5 min. and the air filter must be clean.

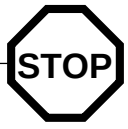
The carburetor has been adjusted by MAKITA on the basis of atmosheric pressure conditions at sea level. Other atmospheric pressure conditions or the running-in process of a new engine may require readjustment of the carburetor.

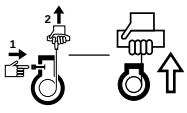
It is urgently recommended to use a revolution indicator (O/1) (order number 950 233 210) in order to achieve a correct adjustment of the carburetor. Adjust the carburetor using a 4 mm screwdriver.

The screwdriver shown (O/2) (order number 944 340 001) has a molded-on lug to assist in adjustment.

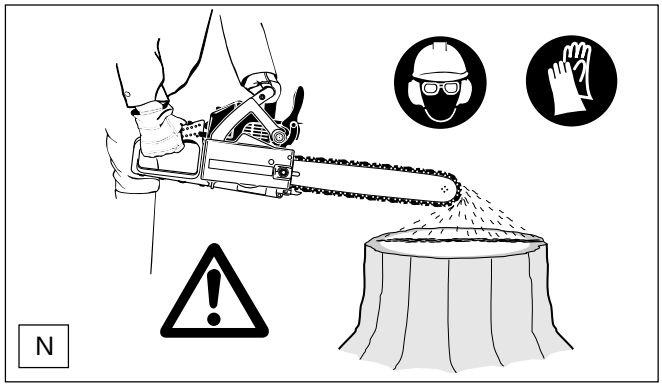
For adjusting the carburetor correctly the following steps must be carried out:

1. Warm up engine
2. Switch off engine
3. Basic adjustment
4. Start engine
5. Set idle speed
6. Adjust speed
7. Check idling speed
8. Check acceleration
9. Check max. speed or output
10. Repeat adjustment procedure starting with step 5, until idling speed, max. speed and acceleration are reached with the adjustment made.





Checking the chain lubrication

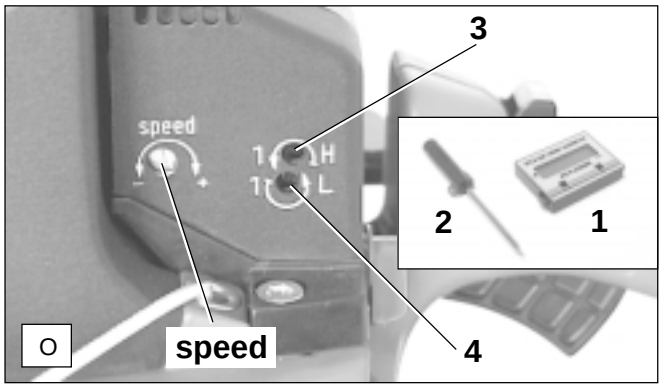


Never work with the chain saw withoute sufficient chain lubrication. Otherwise the service life of the chain and guide bar will be reduced.

Before starting work check the oil level in the tank and the oil feed. Check the oil feed rate as described below:

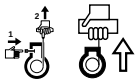
- Start the chain saw.
- Hold the running chain saw approx. 15 cm above a trunk or the ground (use an appropriate base).

If the lubrication is sufficient, you will see a light oil trace because oil will be flung off the sawing device.



Basic adjustment (step 3)

- First, carefully turn the 2 adjusting screws for the main jet (O/3) and the idle jet (O/4) to the right (clockwise) until you feel them stop.
- Now turn both screws one turn to the left (counter-clockwise).



Set idle speed (step 5)

- If the chain turns when the engine is idling, unscrew the throttle-valve stop screw (O/speed) until the chain stops. If the engine runs unevenly, screw the screw (O/speed) back in.
- Idling speed should be 2,600 rpm.

Adjust speed (output) (step 6)

- Adjust the speed by adjusting the main jet screw (O/3) to 11,500 rpm (DCS 340, 341), 12,000 rpm (DCS 400, 401).

Check idle speed (item 7)

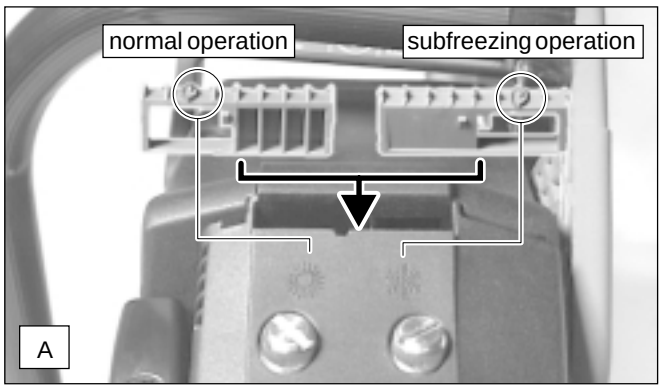
- After having adjusted the max. speed ensure the idle speed is set to 2,600 1rpm. (the chain must not turn). Use the idle jet screw (O/4) to regulate it. Turn in the screw (O/4) to speed up, and turn out the screw (O/4) to speed down the engine.

Check acceleration (item 8)

- Now check the acceleration, i. e. the time necessary for speeding up from idle speed to max. speed. To do this, press the throttle lever hard.
- If the acceleration is too low, turn out the idle jet screw (O/4) approx. 1/8 rotation.

Do not run the engine without load a high speed, open throttle fully only, if you are sawing!

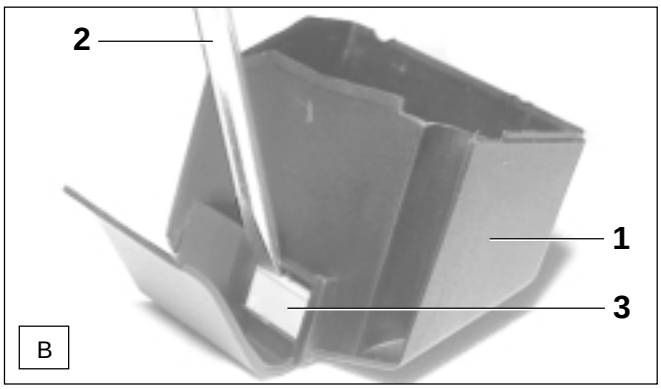
Working in winter



In order to prevent carburetor icing in conditions of low temperature combined with high humidity, and in order to get up to operating temperature faster in subfreezing temperatures, heated air can be taken from the cylinder (marking (circled) on insert in "snowflake" position).

At temperatures above freezing the carburetor must NOT be fed heated air (marking (circled) on insert in "sun" position).

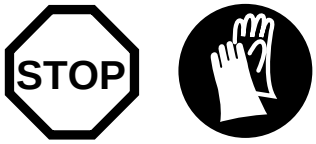
Failure to follow these instructions can lead to damage to the cylinder and piston!



- Remove the filter cover (B/1).
- Position the universal wrench (B/2) as shown above and push the insert (B/3) out by tapping the wrench.
- Put the insert (B/3) back in in the appropriate position, i.e. with the marking next to the sun symbol for normal operation or the snowflake symbol for subfreezing operation.
- Replace filter cover (B/1).

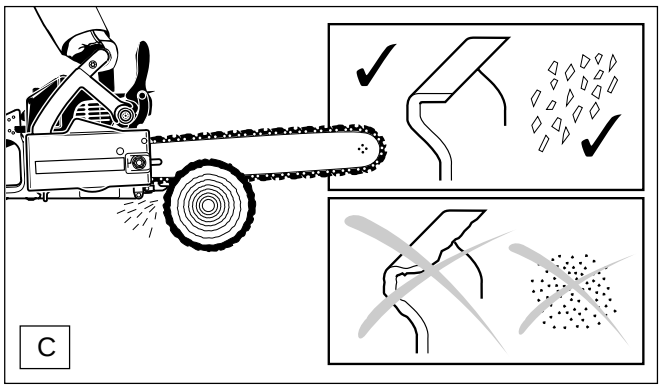
MAINTENANCE

Sharpening the saw chain



CAUTION:

Before doing any work on the guide bar or chain, always switch off the engine and pull the plug cap off the spark plug (see "Replacing the spark plug"). Always wear protective gloves!



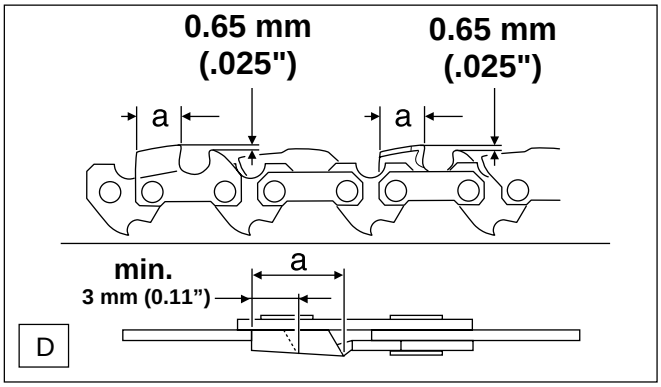
The chain needs sharpening when:

- The sawdust produced when sawing damp wood looks like wood flour.
- The chain penetrates the wood only under great pressure.
- The cutting edge is visibly damaged.
- The saw is pulled to the left or right when sawing. This is caused by uneven sharpening of the chain.

  Important: Sharpen frequently, but without removing too much metal!

  Generally, 2 or 3 strokes of the file will be enough.

  Have the chain resharpened at a service center when you have already sharpened it yourself several times.



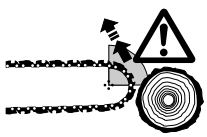
Proper sharpening:

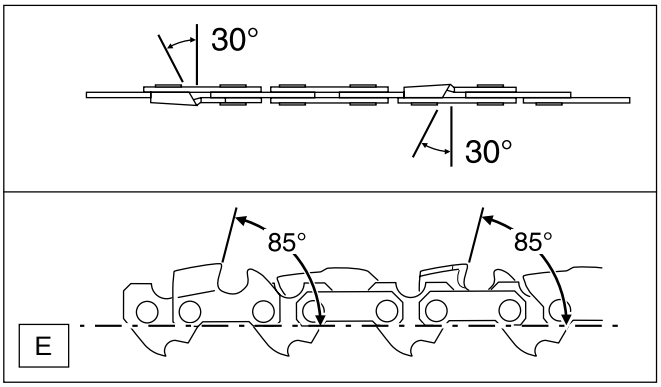
CAUTION:

Use only chains and guide bars designed for this saw (see the Extract from the spare-parts list)**!**

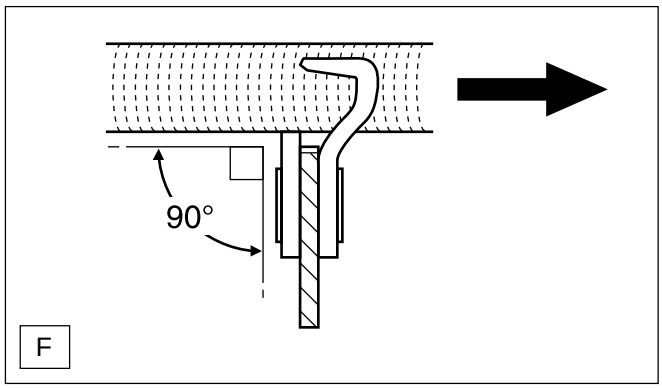
- All cutters must be of the same length (dimension a). Cutters with different lengths result in rough running of the chain and can cause cracks in the chain.
- Minimum cutter length is 0.11" (3 mm). Do not resharpen the chain when the minimum cutter length has been reached; at this point, the chain must be replaced (see the Extract from the spare-parts list and "Replacing the chain").
- The depth of the cut is determined by the difference in height between the depth limiter (round nose) and the cutting edge.
- The best results are obtained with a depth-limiter depth of 0.65 mm (.025").

CAUTION:
Excessive depth increases the risk of kickback!



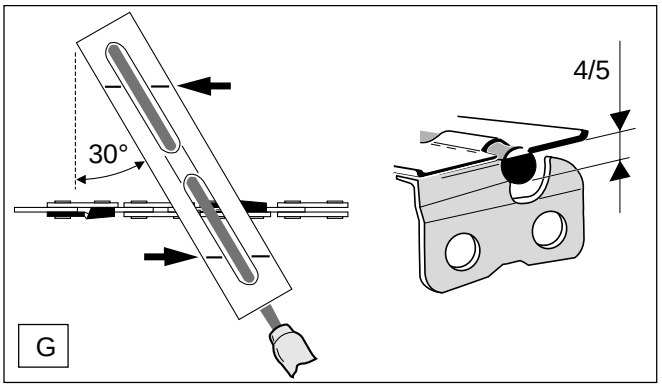


- All cutters must be sharpened to the same angle, 30°. Different angles result in a roughly, irregularly running chain, increase wear and tear and cause chain breakage.
- The 85° front rake of the cutter results from the cut depth of the round file. If the proper file is used in the right manner, the correct front rake will be obtained automatically.

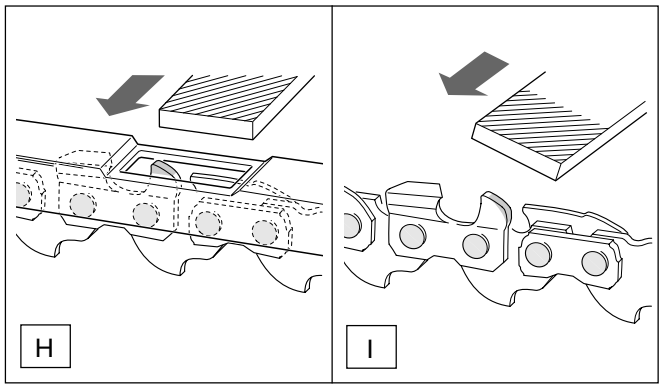


Files and how to work with them

- Use a special round file for chains (dia. 4 mm) for sharpening the chain. Normal round files are not appropriate for this work. See "Accessories" for the order number.
- The file should cut only when pushed forwards (arrow). Lift the file when leading it backwards.
- First sharpen the shortest cutter. The length of this cutter is then the standerd for all other cutters of the chain.
- Always guide the file horizontally (90° to the guide bar).



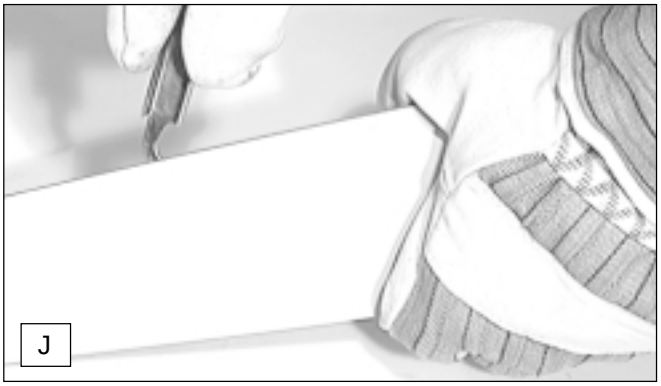
- The file holder makes file guidance easier. It is marked for the correct 30° sharpening angle (keep the marks parallel with the chain when filing, see illustration) and limits the cut depth to the correct 4/5 of the file diameter. See "Accessories" for the order number.



- After having sharpened the chain, the height of the depth limiter must be checked by means of a chain gauge. See "Accessories" for the order number.
- Correct even the smallest excess height with a special flat file (H). See "Accessories" for the order number.
- Round off the front of the depth limiter (I).

Cleaning the guide bar, lubricating the sprocket nose

CAUTION:
Protective gloves must be worn.



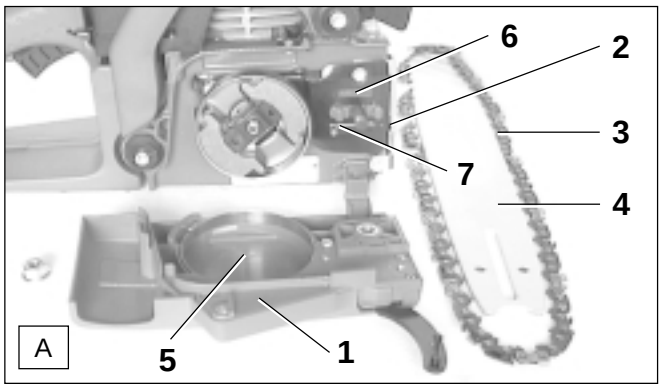
Regularly inspect the bearing surfaces of the guide bar for damage, and clean them with a suitable tool.

If the saw is used intensively it will be necessary to lubricate the return sprocket bearings regularly (once a week). To do this, first **thoroughly** clean the 2 mm hole at the tip of the guide bar, and then press in a small amount of multi-purpose grease.

Multi-purpose grease and grease guns are available as accessories.

Multi-purpose grease (order no. 944 360 000)
Grease gun (order no. 944 350 000)

Cleaning the brake band and sprocket interior



CAUTION: Before doing any work on the guide bar or chain, always switch off the engine and pull the plug cap off the spark plug (see "Replacing the spark plug")**. Always wear protective gloves!**

CAUTION: Start the chain saw only after having assembled it completely and inspected!

- Remove the sprocket guard (A/1) (See "PUTTING INTO OPERATION" figs. A and B).
- Turn the chain tightener screw (A/2) to the left (counter-clockwise) until you feel resistance.
- Remove the chain (A/3) and guide bar (A/4).
- Clean the interior with a brush, in particular the brakeband area (A/5).

NOTE:

Make sure that no residue or contaminants remain in the oil guide groove (A/6) and the chain tightener (A/7).

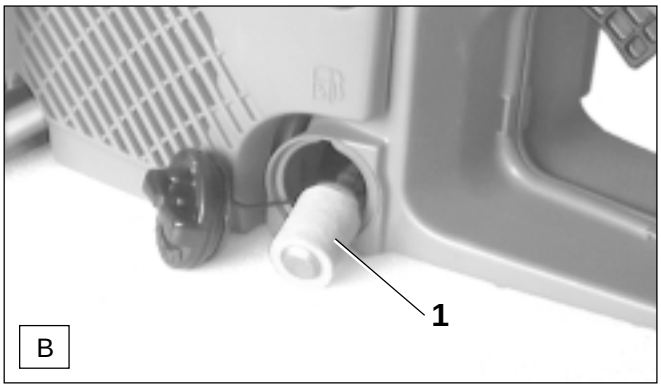
- For replacing the guide bar, chain, and sprocket see "PUTTING INTO OPERATION".

NOTE:

The chain brake is a very important safety device and like any other component subject to normal wear and tear.

Regular inspection and maintenance are important for your own safety and must be done by a MAKITA service center.

Replacing the suction head

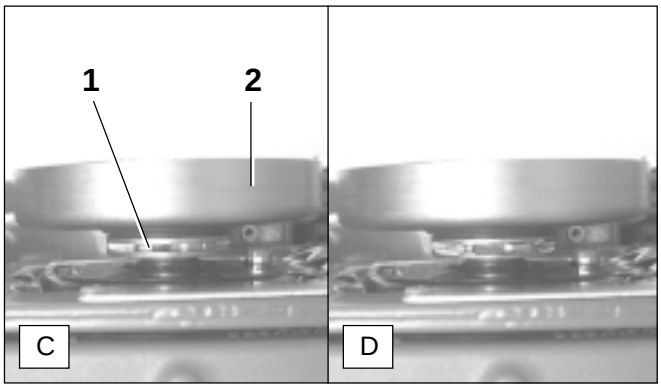


The felt filter (B/1) of the suction head can become clogged. It is recommended to replace the suction head once every three months in order to ensure unimpeded fuel flow to the carburetor. To remove the suction head for replacement, pull it out through the tank filler neck using a piece of wire bent at one end to form a hook.

Replacing the saw chain

CAUTION:

Use only chains and guide bars designed for this saw (see the Extract from the spare-parts list)!



Check the sprocket (C/1) before mounting a new chain.

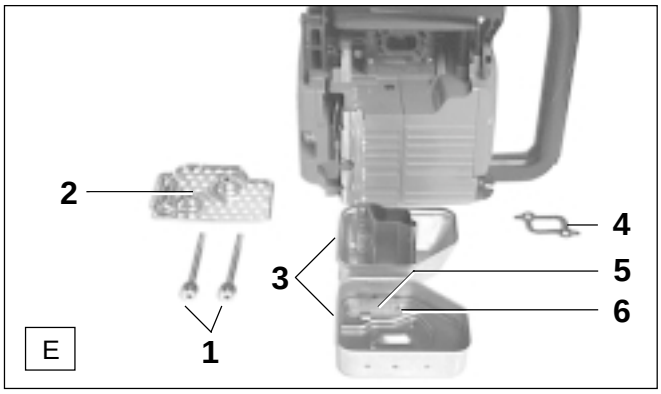
The sprocket is located underneath the clutch drum (C/2).

CAUTION:

Worn out sprockets (D) may damage the new chain and must therefore be replaced.

Do not attempt to replace the sprocket yourself. Sprocket replacement requires special training and tools and must be done at a MAKITA service center.

Replacing / cleaning the spark arrester screen



The spark arrester screen should be checked and cleaned regularly.

- Unscrew the muffler bolts (E/1) and remove the protective screen (E/2).
- Carefully remove the muffler (E/3).

NOTE: If the muffler gasket (E/4) is damaged, replace it.

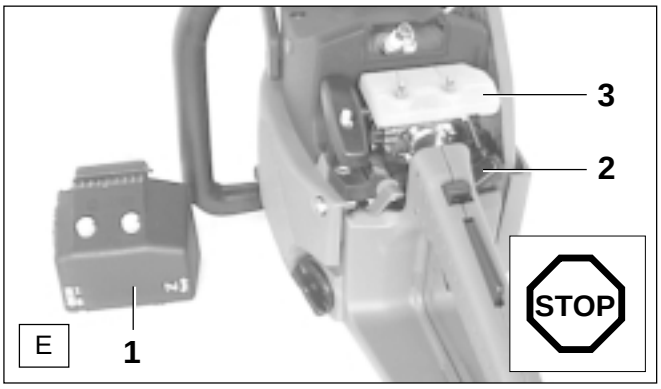
- Unscrew bolt (E/6) and remove the spark arrester screen (E/5).

CAUTION:

Do not use sharp or pointed objects for screen cleaning. Damaged or misformed screen wires may result.

- Reassemble the spark arrester screen (E/5) and tighten the screw (E/6).
- Tighten muffler bolts (E/1) to 5.6 $^{+0.07}$ ft. lbs. (8.0 $^{+0.1}$ Nm).

Cleaning the air filter

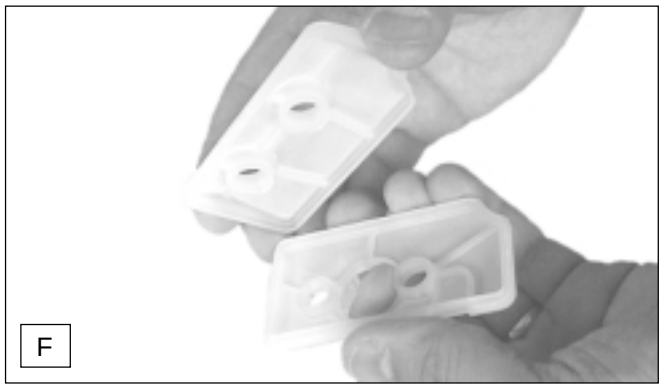


- Remove the filter cover (E/1) (2 screws).

CAUTION:

Press the choke (E/2) up to shut the choke valve and to prevent dirt particles from entering the carburetor.

- Pull the air filter (E/3) off the carburetor.
- Cover the carburetor with a clean cloth.



- Grasp the top and bottom sections of the air filter as shown in figure F and pull apart.

CAUTION: To prevent injury to the eyes, do NOT blow out dirt particles!

Do not use fuel to clean the air filter.

- Clean the air filter with a soft brush.
- If the filter is very dirty, clean it in lukewarm water with dishwashing detergent.
- Let the air filter **dry completely**.
- Put the top and bottom sections back together.
- Before re-installing the air filter, check the choke valve for dirt particles. If there are any, remove them with a brush.

If the filter is very dirty, clean it frequently (several times a day), because only a clean air filter provides full engine power.

CAUTION: Replace damaged air filters immediately. Pieces of cloth or large dirt particles can destroy the engine!

Replacing the spark plug

CAUTION:

Do not touch the spark plug or plug cap if the engine is running (high voltage).

Switch off the engine before starting any maintenance work.

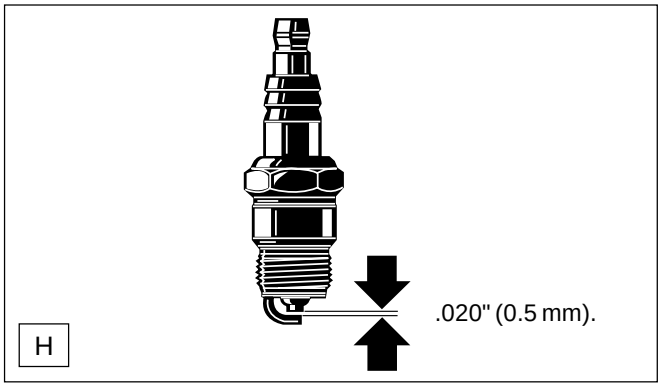
A hot engine can cause burns. Wear protective gloves!

The spark plug must be replaced in case of damage to the insulator, electrode erosion (burn) or if the electrodes are very dirty or oily.

- Remove the filter cover (see "Cleaning the air filter" above, Fig. E/1).
- Pull the plug cap (G/1) off the spark plug. Use only the combination wrench supplied with the saw to remove the spark plug.

CAUTION: Use only the following spark plugs:

NGK BPMR 6F or **CHAMPION RDJ-7Y**.



Electrode gap

The electrode gap must be .020" (0.5 mm).

Checking the ignition spark

- Press the loosened spark plug with the ignition cable firmly connected against the cylinder using insulated pliers (not near the spark plug opening).
- ON/OFF switch in the "**I**" (ON) position.
- Pull the starter cable hard.

If the function is correct, an ignition spark must be visible near the electrodes.

Instructions for daily and periodic maintenance

To ensure a long servicelife and to prevent any damage the maintenance work described in the following must be performed regularly. The product guarantee will be automatically invalidated if this maintenance is not carried out regularly and according to the instructions.

Perform the following servicing work daily after use. Make a habit of it, it does not require much time and your saw will always function properly.

Possibly hidden faults can be detected in this manner before causing expensive and annoying interruptions of your work. In case you should detect a fault in the safety equipment when performing daily servicing, the saw must not be used before elimination of the fault. The user of the chain saw must not perform maintenance work which is not described in the instruction manual. All such work must be carried out by a MAKITA service center.

			Page
General	Chain saw	Clean exterior, check for damage. In case of damage, have repaired by a qualified service center immediately	
	Saw chain	Sharpen regulary, replace in good time	24-25
	Chain brake	Have inspected regularly at an authorized service center	
	Guide bar	Turn over to ensure even wear of bearing surfaces Replace in good time	19
Before each start	Saw chain	Inspect for damage and sharpness Check chain tension	24 19
	Guide bar	Check for damage	
	Chain lubrication	Functional check	23
	Chain brake	Functional check	20
	OFF switch, Safety locking button, Throttle lever	Functional check	22
	Fuel/oil tank plug	Check for tightness	
Every day	Air filter	Clean	27
	Guide bar	Check for damage, clean oil intake bore	22
	Guide bar support	Clean, in particular the oil guide groove	22, 26
	Idle speed	Check that a sufficient difference is existing between idlind speed and engaging speed, to ensure that the chain is in standstill while the engine is idling.	23
Every week	Fan housing	Clean to ensure proper air cooling	
	Carburetor interior	Clean (remove filter cover for access)	27
	Chain brake	Clean the brake band (sawdust, oil)	26
	Spark plug	Check and replace if necessary	27
	Muffler	Check tightness of mounting, clean spark arrester screen	26
	Chain guide	Check	25
Every 3 months	Suction head	Replace	26
	Fuel, oil tanks	Clean	
Storage	Chain saw	Clean exterior, check for damage. In case of damage, have repaired by a qualified service center immediately	
	Guide bar/chain	Demount, clean and oil slightly	
		Clean the guide groove	26
	Fuel, oil tanks	Empty and clean	
	Carburetor	Run empty	

Service, spare parts and guarantee

Maintenance and repair

The maintenance and repair of modern engines as well as all safety devices require qualified technical training and a special workshop equipped with special tools and testing devices.

We therefore recommend that you consult a MAKITA service center for all work not described in this instruction manual.

The MAKITA service centers have all the necessary equipment and skilled and experienced personnel, who can work out cost-effective solutions and advise you in all matters.

Please contact the general agent or importer indicated on the back cover of this Instruction Manual, who will gladly provide you with the address of your nearest MAKITA service center.

Spare parts

Reliable long-term operation, as well as the safety of your chain saw, depend among other things on the quality of the spare parts used. Use only original MAKITA parts, marked

Only original spare parts and accessories guarantee the highest quality in material, dimensions and function.

Original spare parts and accessories can be obtained from your local dealer. He will also have the spare part lists to determine the required spare part numbers, and will be constantly informed about the latest improvements and spare part innovations.

Please bear in mind that if parts other than original MAKITA spare parts are used, this will automatically invalidate the MAKITA product guarantee.

Guarantee

MAKITA guarantees the highest quality and will therefore reimburse all costs for repair by replacement of damaged parts resulting from material or production faults occurring within the guarantee period after purchase. Please note that in some countries particular guarantee conditions may exist. If you have any questions, please contact your salesman, who is responsible for the guarantee of the product.

Please note that we cannot accept any responsibility for damage caused by:

- Disregard of the instruction manual.
- Non-performance of the required maintenance and cleaning.
- Incorrect carburetor adjustment.
- Normal wear and tear.
- Obvious overloading due to permanent exceeding of the upper performance limits.
- Use of guide bars and chains which have not been approved.
- Use of guide bar and chain lengths which have not been approved.
- Use of force, improper use, misuse or accidents.
- Damage from overheating due to dirt on the fan housing.
- Work on the chain saw by unskilled persons or inappropriate repairs.
- Use of unsuitable spare parts or parts which are not original MAKITA parts, insofar as they have caused the damage.
- Use of unsuitable or old oil.
- Damage related to conditions arising from lease or rent contracts.

Cleaning, servicing and adjustment work is not covered by the guarantee. All repairs covered by the guarantee must be performed by a MAKITA service center.

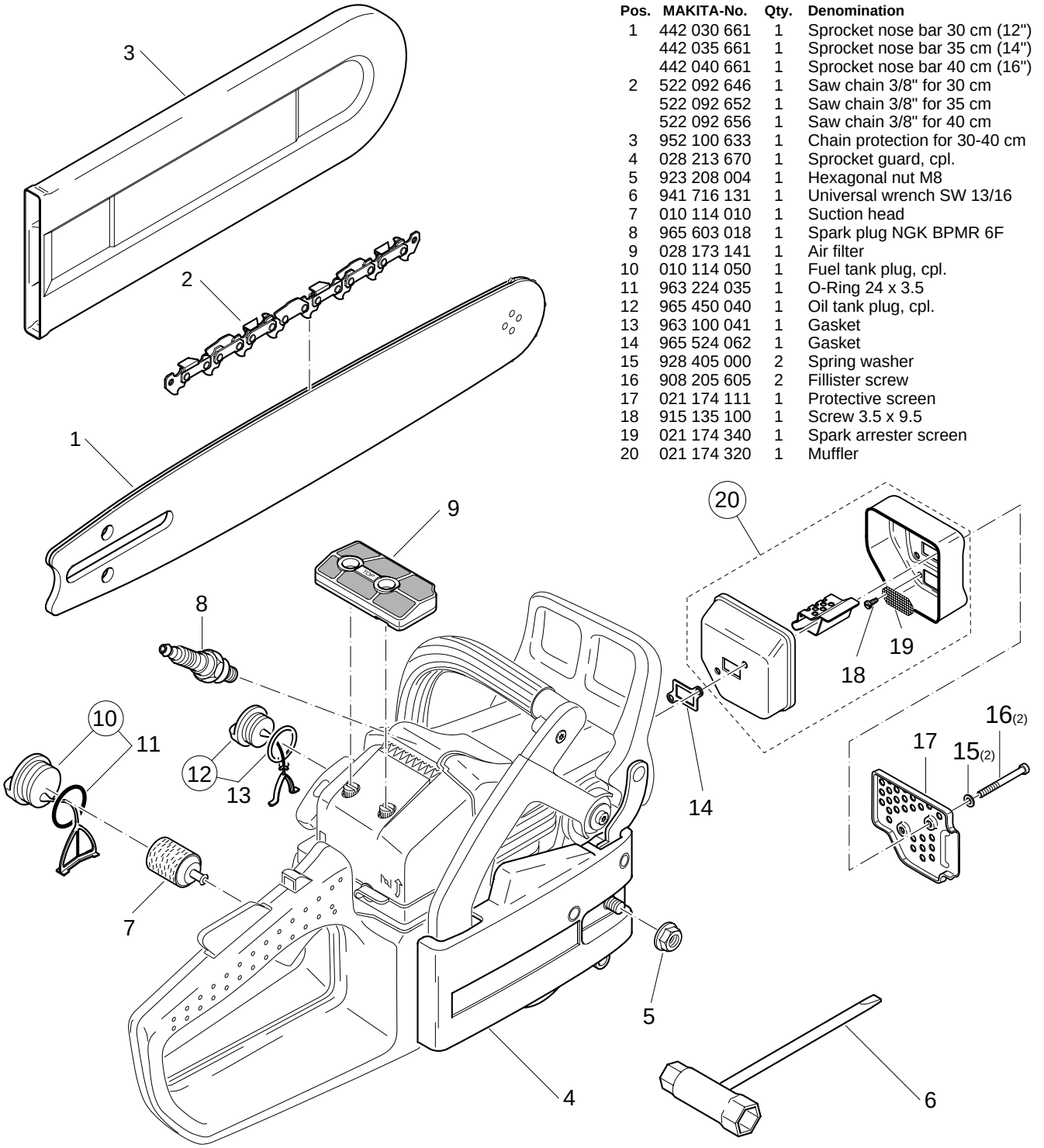
Troubleshootig

Malfunction	System	Observation	Cause
Chain does not run	Chain brake	Engine runs	Chain brake actuated.
Engine does not start or only with difficulty	Ignition system	Ignition spark	Malfunction in fuel supply system, compression system, mechanical malfunction.
		No ignition spark	Switch on STOP, fault or short-circuit in the wiring, plug cap or spark plug defective.
	Fuel supply	Fuel tank is filled	Choke in wrong position, carburetor defective, suction head dirty, fuel line bent or interrupted.
	Compression system	Inside	Cylinder base packing ring defective, radial shaft packings defective, cylinder or piston rings defective
		Outside	Spark plug does not seal.
	Mechanical malfunction	Starter does not engage	Spring in starter broken, broken parts inside the engine.
Warm start difficulties	Carburetor	Fuel tank is filled Ignition spark	Wrong carburetor adjustment.
Engine starts, but dies immediately	Fuel supply	Fuel tank is filled	Wrong idling adjustment, suction head or carburetor dirty. Tank venting defective, fuel line interrupted, cable defective, STOP switch defective. Starting valve dirty (DCS 341/401).
Insufficient power	Several systems may be involved simultaneously	Engine is idling	Air filter dirty, wrong carburetor adjustment, muffler clogged,exhaust channel in cylinder clogged.
No chain lubrication	Oil tank/pump	No oil on the chain	Oil tank empty. Oil guide groove dirty. Oil-pump adjusting screw incorrectly adjusted.

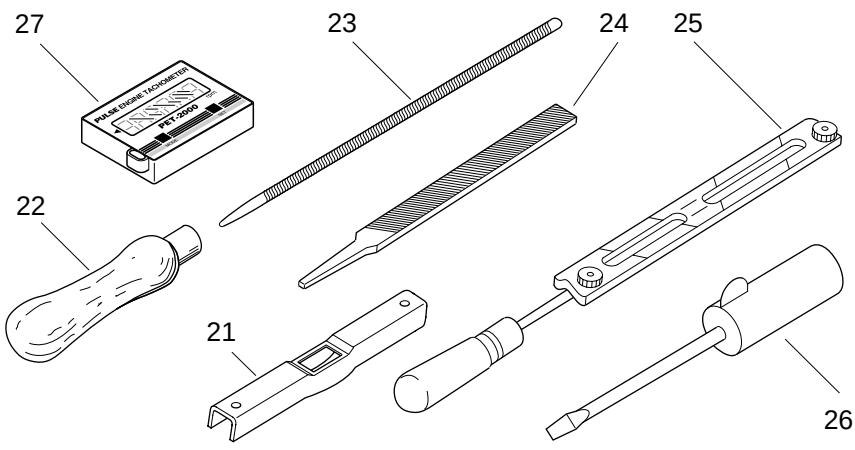
Extract from the spare parts list

Use only original MAKITA parts. For repairs and replacement of other parts, see your MAKITA service center.

DCS 340 / DCS 341
DCS 400 / DCS 401



Pos.	MAKITA-No.	Qty.	Denomination
1	442 030 661	1	Sprocket nose bar 30 cm (12")
	442 035 661	1	Sprocket nose bar 35 cm (14")
	442 040 661	1	Sprocket nose bar 40 cm (16")
2	522 092 646	1	Saw chain 3/8" for 30 cm
	522 092 652	1	Saw chain 3/8" for 35 cm
	522 092 656	1	Saw chain 3/8" for 40 cm
3	952 100 633	1	Chain protection for 30-40 cm
4	028 213 670	1	Sprocket guard, cpl.
5	923 208 004	1	Hexagonal nut M8
6	941 716 131	1	Universal wrench SW 13/16
7	010 114 010	1	Suction head
8	965 603 018	1	Spark plug NGK BPMR 6F
9	028 173 141	1	Air filter
10	010 114 050	1	Fuel tank plug, cpl.
11	963 224 035	1	O-Ring 24 x 3.5
12	965 450 040	1	Oil tank plug, cpl.
13	963 100 041	1	Gasket
14	965 524 062	1	Gasket
15	928 405 000	2	Spring washer
16	908 205 605	2	Fillister screw
17	021 174 111	1	Protective screen
18	915 135 100	1	Screw 3.5 x 9.5
19	021 174 340	1	Spark arrester screen
20	021 174 320	1	Muffler



Accessories (not delivered with the chain saw)

21	953 100 090	1	Chain gauge
22	953 004 010	1	File handle
23	953 003 090	1	Round file, dia. 4 mm
24	953 003 060	1	Flat file
25	953 030 010	1	File holder (with 4 mm dia. round file)
26	944 340 001	1	Carburetor screwdriver
27	950 233 210	1	Tachometer
-	949 000 031	1	Combined can (for 5l fuel, 2.5l oil)